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THE HORSELESS CARRIAGE CLUB

GAZETTE

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GOLDEN JUBILEE

THE FIRST RACE WINNER

THE HORSELESS CARRIAGE CLUB

Founded in Los Angeles - November 14th, 1937

A non-profit corporation founded by and for Automotive Antiquarians and dedicated to the preservation of the old time automobiles together with their accessories, archives and romantic lore.

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THE
HORSELESS CARRIAGE CLUB GAZETTE

Official Publication of The Horseless Carriage Club.

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ANNIVERSARY ISSUE.

This Anniversary Issue of The Horseless Carriage Club Gazette is to Commemorate Fifty Years of Automotive Progress in the United States. Much of the material it contains was selected from Mr. W. Everett Miller's Library of Vehicles by Mr. Miller and Mr. Ben L. Sharpsteen.

We know that you will enjoy this enlarged Gazette. Membership in the Club is increasing rapidly and the Directors feel that a larger, improved Official Club Publication is needed. Your editorial committee wishes to make the Club publication just what its readers wish it to be. Any suggestions for improvement, or any articles of interest will be appreciated. Send pictures if possible. 5x7 inch glossy contrasty prints are most suitable. Send all Gazette material to Herbert Royston, P. O. Box 503, West Los Angeles 25, California.

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AMERICA'S FIRST GASOLINE AUTOMOBILE.

An address delivered by MR. J. FRANK DURYEA, at a meeting of THE HORSELESS CARRIAGE CLUB, Los Angeles County Museum, Los Angeles, California. April 22, 1945.

Mr. President, Members of The Horseless Carriage Club: Mr. Miller kindly invited me to attend this meeting, and it is a pleasure for me to have the honor of being with you this afternoon. Inasmuch as he has asked me to talk with you regarding the early days of the automobile, I shall begin by referring to the conditions which made it possible.

The decade of the eighties may be considered as that in which, for the first time, all the knowledge and things necessary to the construction of a gasoline automobile were present in this country. Oil wells, first drilled in 1858, were furnishing the deriviatives, kerosene and gasoline. A few gas engines came into use, operating on the Otto four-stroke cycle. Gas producers were in use, making from gasoline a gas suitable for these engines. Ball bearings and rubber tires became common on bicycles. Friction clutches, belts, chains, and gears for transmitting power were well known. Differential gearing had been used on tricycles. The self-propelled trolley car came into use, and experiments with steam road vehicles were made.

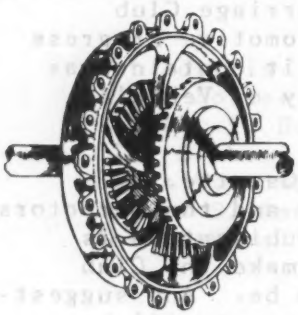


Fig. 1. James Starley's differential gear first applied to the tricycle in 1877.

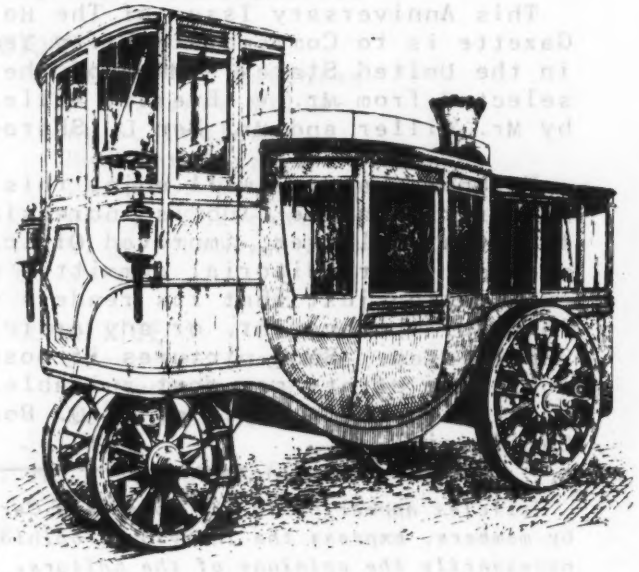


Fig. 2. The steam carriage of Charles Randolph of Glasgow, built in 1872. It weighed 4½ tons ready for the road. Probably the first entirely enclosed road vehicle. Note wheel steer and rear engine.

Given initiative and these conditions, the appearance of the automobile in America could not be long delayed. However, conditions in Germany were even more favorable, for there, in 1876, Dr. Otto had constructed the first four-cycle gas engine, and in the next seven or eight years these machines had begun to attract much attention there. Knowledge of these engines no doubt spurred Gottlieb Daimler and Carl Benz to action, for Daimler started work at Cannstatt in 1884, and Benz at Manheim in 1885.

Daimler's first engine had a single vertical cylinder, but he soon started building two-cylinder engines, of a narrow "V" type, using hot tube ignition, and a tank type carburetor. These engines were operated at a high speed for that time, but since both pistons were connected to the same crank pin, there was considerable vibration. They were not throttled to obtain variable speed, but were held to approximately constant speed by governor control of the exhaust valve action, working on the well known "hit-and-miss" principle, whereby the engine received either a full charge or nothing.

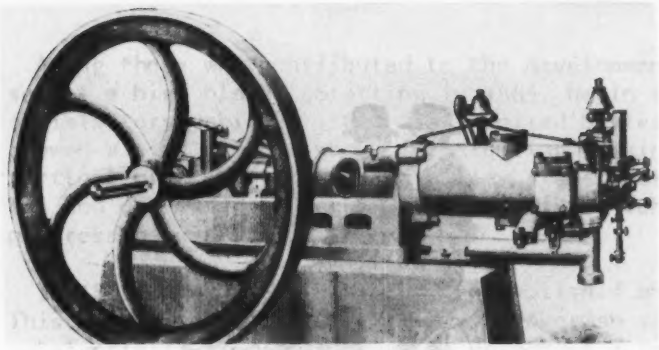


Fig. 3. In 1872 Dr. N. A. Otto and Peter Langen established a gas engine works near Deutz. Gottlieb Daimler was employed as Technical Director. In 1876 with Wilhelm Maybach as chief designer this first 4 cycle compression engine was developed.

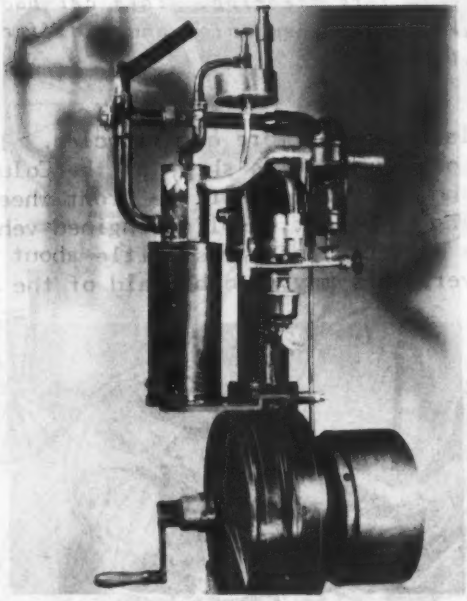


Fig. 4. Daimler's first single cylinder engine. 1885.

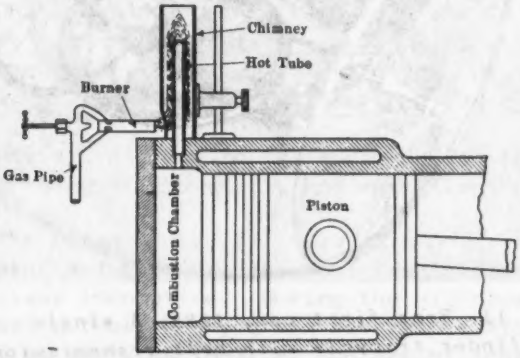


Fig. 6. Typical hot tube igniter.

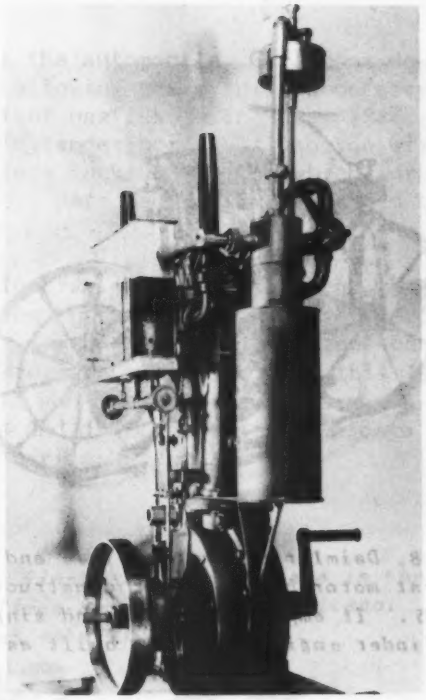


Fig. 5.
Daimler's two cylinder "V" engine of 1889.

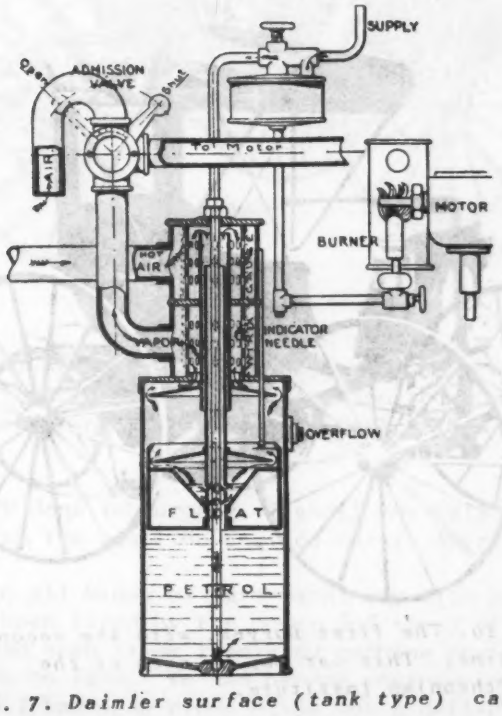


Fig. 7. Daimler surface (tank type) carburetor.

Fig. 8. Daimler's first vehicle and the first motor bicycle ever constructed, 1885. It employed the second single cylinder engine which he built as shown in Fig. 4.

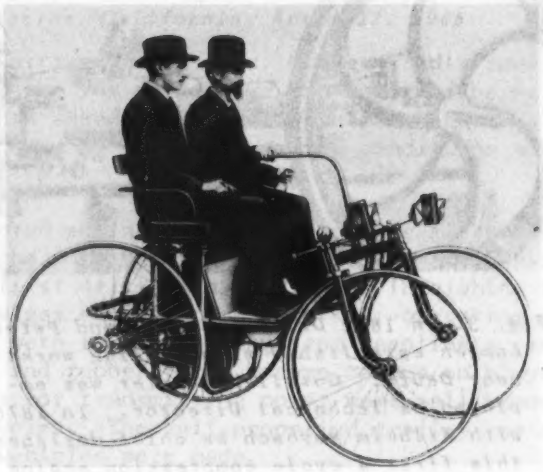


Fig. 9. Daimler quadricycle of 1889 using bicycle fork steering. This car had a four speed transmission and a differential gear.

Daimler, in 1885, built a motor bicycle, and later one or more quadricycles. I have no information as to the number built, but one of them was shown at the Columbian Exhibition in Chicago during 1893. It had no front axle, but the front wheels were steered by bicycle type front forks. This was the first gasoline-engined vehicle shown in America, but if my impression of it was correct, there was little about it to inspire in one a desire to possess it. However, this may also be said of the first Duryea, now in the National Museum.

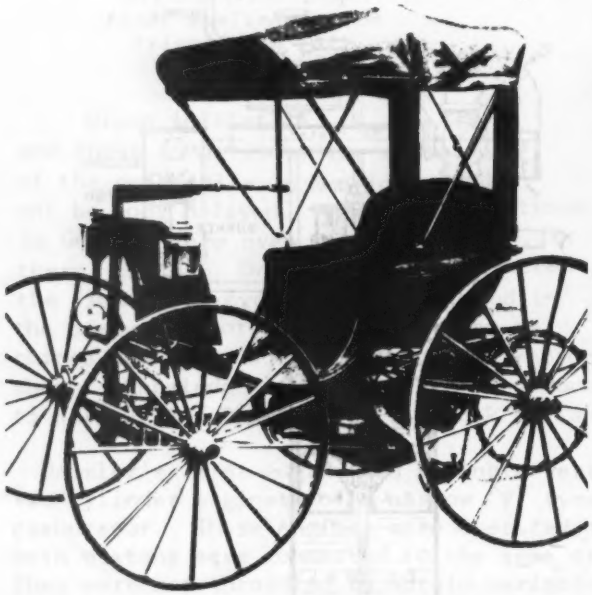


Fig. 10. The first Duryea, with the second engine. This car may be seen at the Smithsonian Institute.

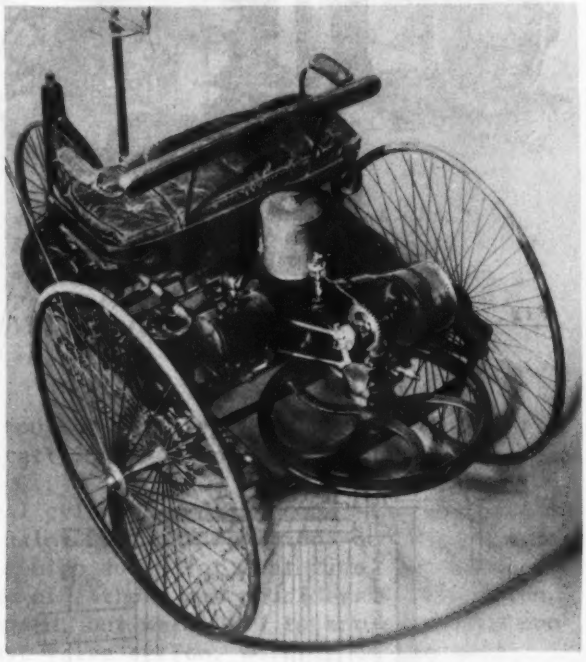


Fig. 11. Benz first car, 1885. A single cylinder tricycle with belt transmission adapted from lathe practice. This drive was retained until about 1902.

Among those who contributed to the development of the automobile, Carl Benz deserves a high place. Starting in 1885, he in the following years built some very satisfactory vehicles. His first United States Patent was issued in June, 1888, and showed a single front wheel for steering, a single-cylinder horizontal engine with vertical crankshaft, belt and pulley transmission to a jackshaft, from which sprockets and chains drove each rear wheel of the vehicle. Here Benz early disclosed the progress he was making.

In 1889, the Scientific American published an illustration of a later Benz car. This was a four-wheeled vehicle with Akerman steering knuckles and was, I believe, substantially as far advanced in design as were the three Benz cars that took part in the Times-Herald Race in Chicago in 1895. Therefore, I would say of this 1889 Benz that it was probably the first really desirable and usable gasoline-engined car in Europe, just as the car which I designed in 1894 and drove to win the Chicago race in 1895, was the first really usable car built in America.

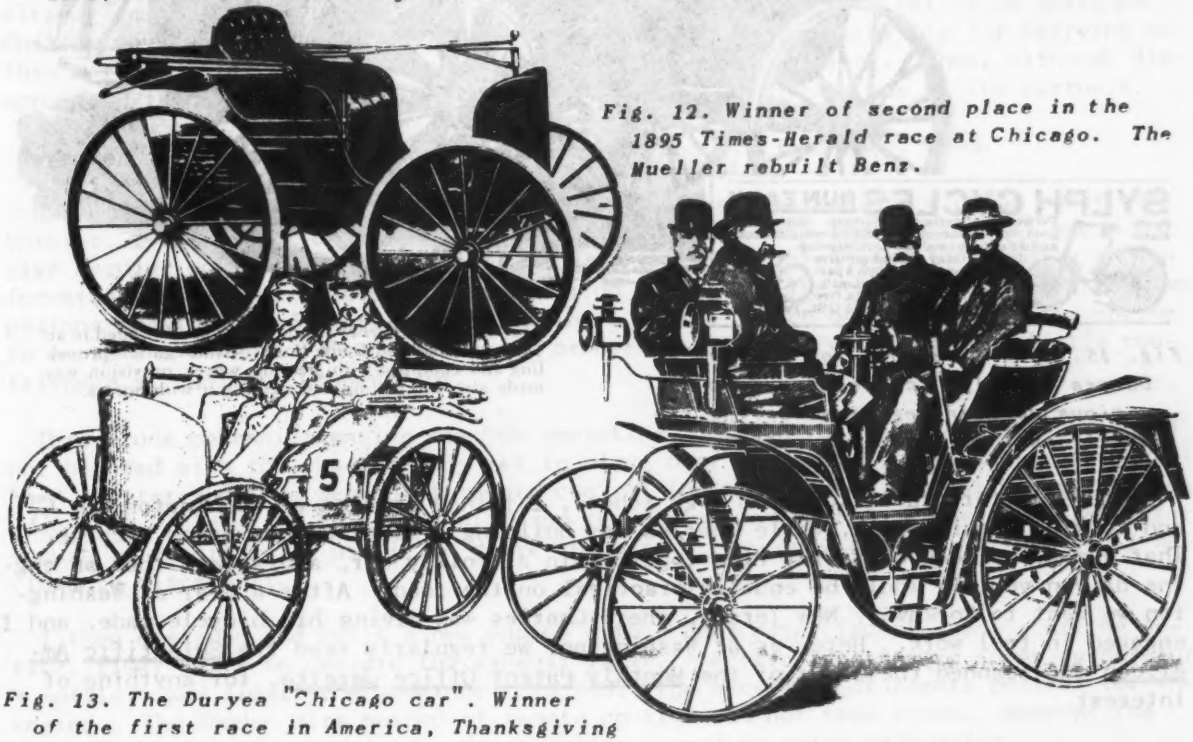


Fig. 12. Winner of second place in the 1895 Times-Herald race at Chicago. The Mueller rebuilt Benz.

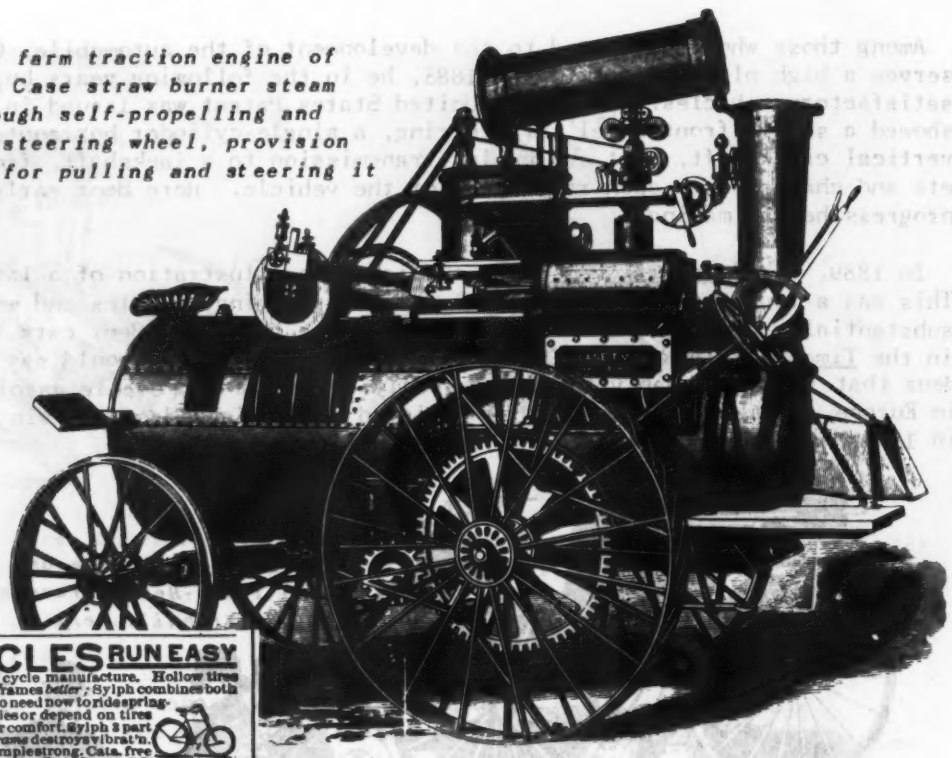
Fig. 13. The Duryea "Chicago car". Winner of the first race in America, Thanksgiving day, 1895.

Charles Duryea and I were together in 1889 at Rockaway, New Jersey, and, as we always read the Scientific American, I am sure that we saw the illustration above mentioned, for I have always said that we knew something of the work of Benz before we ever started work on the first Duryea car.

Having referred to the start and to the work done in Germany, I shall now tell something of the start, and work first done, on the gasoline-engined car in America.

The Duryeas were Illinois farm boys, used to all kinds of farm machinery with belt, chain, and gear drives. Our imagination had been fired by the power and speed of the railway locomotive. During the eighties we had seen steam threshing machine engines, drawing their heavy grain separators from farm to farm. We had become engine-minded, and as early as 1883, at the age of fourteen, I had made crude plans for a belt-driven steam vehicle.

Fig. 14. Typical farm traction engine of the 80's. The Case straw burner steam engine. Although self-propelling and equipped with steering wheel, provision was made also for pulling and steering it with horses.



The Case straw burner steam engine as illustrated in an 1885 Almanac and Guide Book. Although self-propelling and equipped with steering wheel, provision was made also for pulling and steering it with horses.

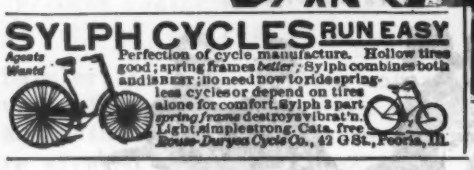

SYLPH CYCLES RUN EASY
Agents Wanted
Perfection of cycle manufacture. Hollow tires good; spring frames better; Sylph combines both and is BEST; no need now to ride spring-less cycles or depend on tires alone for comfort. Sylph 2 part spring frame destroys vibrat'n. Light, simple strong. Cata. free
Bauer-Duryea Cycle Co., 42 G St., Peoria, Ill.

Fig. 15. Advertisements for Charles E Duryea's "Sylph" cycles appeared in various popular magazines during the latter part of 1892 and in 1893.

In 1888, after graduating from high school, I joined Charles at Washington, D. C., and took up machine work, while Charles was building a model of his Sylph bicycle. That summer we took our first ride together in a trolley car, and agreed that an engine-driven vehicle would be equally practical on the road. After a year at Washington we went to Rockaway, New Jersey, where Charles was having his bicycle made, and I engaged in tool work. Here, as at Washington, we regularly read the Scientific American and scanned the pages of the Monthly Patent Office Gazette, for anything of interest.

After a year and a half at Rockaway, Charles moved his bicycle work to the Ames Manufacturing Company at Chicopee, Massachusetts, and I soon followed, again taking up tool making and mechanical drawing. At Chicopee we spent much of our spare time in discussion of mechanical matters of interest to us both and, in the summer of 1891 due, I believe, to some further reference to the work of Daimler or Benz, we started reading books on gas engines with the idea of building a motor vehicle.

It was not until the late fall or early winter of 1891 that Charles took the steps that lead to our starting work on the first Duryea car, for at this time he came to me and announced that he had just the engine and transmission that we needed for the vehicle we had talked of building. He then described a free piston engine, as suggested to him by C. E. Hawley, and an unusual form of friction transmission which I think was probably never used before or since. I at once contended that both these ideas were highly experimental and their use questionable, but Charles went ahead and had Ames Company draftsmen make illustrative sketches of the idea, as applied to a

democrat spring wagon. The only working drawings made were for a part of the friction transmission and part of the body of the engine. These drawings were made in the winter of 1891 and 1892, but it was not until March 1892, that Charles met Erwin F. Markham and arranged for a conference at which Mr. Markham agreed to put up one thousand dollars to build the first car.

Being the more competent mechanic of the two, it had been understood that if a start was made I should have charge of the work, and I went with Charles to see Mr. Markham and later to locate a suitable workshop. Following this, a secondhand phaeton was bought, into which the parts would be fitted. Starting early in April, 1892, construction proceeded through the summer, for it was a new line of work and I had much designing and drafting to do.

With perhaps the most difficult parts of the car, such as carburetor, hot tube ignition, and a method of controlling the engine and transmission yet to be designed, Charles moved to Peoria, Illinois, leaving to me full responsibility for carrying on this work and, in return, assuring me of a share in the project. Thus, although disappointed that I had not been included at first, I now became one of the partners.

Illness contracted in October stopped all work until January 1, 1893.

Having designed and built for the engine, hot tube ignition and a crude spray carburetor, I attempted to start the free piston engine, only to find that it would not give regular power impulses. Our backer, Mr. Markham, threatened to withdraw and to forestall this, I eliminated the free piston feature of the engine by pinning the two pistons together, and hastily constructing a little device on the side of the engine to cause the exhaust valve to function properly. I have a model of this little contrivance at Madison, Connecticut.

This crude makeshift engine was now operative, but had very little power and could not be used with the phaeton body set in place over it without first adding a special hand starter and some method of remote control for the engine. But with these things added, it would still be a makeshift and the engine was therefore never completed far enough to enable us to use it to drive the car on the road, for Mr. Markham and I decided to discard it.

I then designed and built a new engine with a cast water jacket, hand starting device, timer gears to operate the exhaust valve, electric ignition, a spray carburetor, a muffler, and finally, a governor - to avoid the necessity of remote control for the engine. The Bowden wire method of remote control was not then known. None of the above features were used in the first engine except my spray carburetor.

Since the working parts had been supported by a rigid framework connecting front and rear axles, I arranged to support this framework at a single point on the front axle, thus providing a three point support for the engine and transmission and avoiding distortion due to uneven roads.

This first Duryea car was first driven on the road September 21, or 22, 1893, as shown in the SPRINGFIELD EVENING UNION of September 22, 1893. The engine gave no trouble, but owing to its friction transmission, the car was barely operative, and I was never able to give a demonstration to a possible investor. Charles' engine had been a failure, and now his second principle feature - the friction transmission - was also a failure.

After a few weeks' testing, Mr. Markham decided to quit. Refusing to accept this as final, I designed a new transmission of gears and friction clutches, and confidently

offered to build it on my own time if Mr. Markham would pay material and shop expense. He accepted and I built and installed it in the car. The SPRINGFIELD UNION of January 19, 1894, describes my first trip with this successful transmission. This car, with my engine and transmission, is the Duryea car now in the National Museum at Washington, D. C. Charles Duryea never drove this first car, as he testified under oath in the famous Selden Patent case, during 1904.

Fig. 16. U. S. National Museum photo of George B. Selden's automobile patent office model. Although first papers were filed in 1879 Selden's patent was not issued until 1895. The first Selden car was built in 1905 during his famous patent suit, to prove his engine was practical. The demonstration was a failure.

Fig. 17. Charles B. King's car of 1894 was the first to be used on the streets of Detroit. The production car which bore his name did not appear until 1910.

With the first car nearing completion, I started, about January 1, 1894, to design a second car. Mr. Markham was unable to finance the work further and, as I had been without salary for a month and a half, it was necessary that I quickly find new capital. Borrowing to live, and working earnestly, I had, in March, completed plans for the new car. These plans showed a piano-box side bar buggy, with a 2-cylinder, 2-cycle motor, and my transmission of gears and friction clutches, all well concealed in the body. A live rear axle with ball bearings, and wheels with all metal hubs were shown, also ball bearings for the transmission shafts.

With these plans in hand I was able, late in March, 1894, to induce Henry W. Clapp to agree to finance construction of the car, and work was started in April. This car was operative early in December, 1894, and was repeatedly driven rapidly around the empty top floor of the factory building. The motor was a trifle irregular due to faulty electric ignition, but believing the motor faulty, I converted it from 2-cycle to 4-cycle in January and February, 1895. The irregularity continued and was traced to a weak spark, and promptly corrected.

The car was painted, and with wheels equipped with cushion tires was placed on the road late in March, 1895. From this time it was in use nearly every day of the spring and summer, giving demonstrations to build up the interest necessary to enable us to organize a company.

The cushion tires soon wore out, and I replaced them with pneumatic tires. This is shown in my letter to Charles Duryea at Peoria, Illinois, dated May 20, 1895, and presented by him as evidence in the Selden Patent case during 1904. In this letter I said, "We have had a tough experience with those cushion tires; they are no good." Charles then testified that the letter stated that "pneumatics are being put on."

This shows that the United States Rubber Company was in error when it celebrated last March 11th as the Fiftieth Anniversary of the first use of pneumatic tires on a car, and credited that use to Charles Duryea. It is obvious that these tires were not used until somewhat later than May 20, 1895. I think it probable that they were first used about June 11, 1895

After giving many demonstrations with the car throughout the summer, the Duryea Motor Wagon Company was organized at Springfield, Massachusetts, in September, 1895, with George H. Hewitt, President, and T. W. Leete, Treasurer. In recognition of my work of designing and building the car, I was made a director and employed as Chief Engineer in charge of design and production, as the record shows. Charles Duryea was never employed by this first of America's automobile companies.

Driving this car for the Duryea Motor Wagon Company, I won America's first race, sponsored by the Chicago Times-Herald, and run on Thanksgiving Day, November 28, 1895. The course was from Chicago to Evanston and return; the distance, 54 miles. Much snow fell the day before the race and, of nearly eighty entries, only six appeared at the start. Two of these were electrics and three were foreign Benz cars, so that the Duryea was the only American gasoline car in the race.

Of the six starters, but two finished, and those were the Duryea, driven by me, with Arthur W. White of Toronto, Ontario, as umpire, and a Benz, driven by Oscar Mueller of Decatur, Illinois, with umpire Charles B. King of Detroit. After a trying day, the Duryea finished ahead of the Benz, by an hour and thirty-five minutes, winning first prize of two thousand dollars. The Benz was driven across the finish line by umpire Charles B. King after the driver had fainted from exhaustion due to pushing the car through the drifted snow. Charles B. King was first to build a car in Detroit, and later built the King automobile.

Since the "Chicago winner" was the first really desirable and usable American car, I shall now list some of its more important features, and I may say that I was the first to use these features in an American automobile:

1. An engine with electric ignition.

2. A pump to circulate water for cooling the engine.

3. A spray carburetor for the engine, with constant gasoline level.

4. A pump to supply gasoline for the carburetor.

5. A transmission having three speeds and reverse, in which power was transmitted through toothed gears by setting a friction clutch.

6. Ball bearings for the transmission shafts.

7. A rear axle having differential gears and rotating axle shafts to drive the rear wheels of the car.

8. Ball bearings for the rear axle shafts.

9. Concealed mechanism.

10. Pneumatic tires - built to my specifications by Hartford Rubber Works.

All of these features are to be found in the automobile of today. None of them were to be found in Charles Durvea's partly completed plans for the first Duryea car.

However, following Charles' departure for Peoria, Illinois, I designed for the first car, a spray carburetor, electric ignition, and a gear and friction clutch transmission.

I may say further that the Benz cars imported from Germany in 1895 contained but three of these ten features, namely: electric ignition, ball bearings on a transmission shaft, and partly-concealed mechanism.

The "Chicago winner" was the second Duryea car, but after formation of the Duryea Motor Wagon Company, I designed a third car, of which thirteen were finished and the greater part sold during 1896. Driving one of these, I won America's second race on Decoration Day, May 30, 1896. This race was sponsored by the Cosmopolitan Magazine, and was from New York to Irvington on the Hudson and return, a distance of 52 miles. Another of these cars was loaned to Barnum and Bailey, and for a time was shown dayly in their ring and street parades.

BARNUM & BAILEY GREATEST SHOW ON EARTH
1896
HORSELESS CARRIAGE
THE 1895 DURYEA WAS THE WORLD'S FIRST REAL AUTOMOBILE, HAD ALL MODERN ESSENTIALS.

Barnum & Bailey poster advertising the 1896 Duryea used in their show.

J. Frank Duryea, co-inventor, designer and builder of America's first gasoline automobile in 1893, at the tiller of the 1896 Duryea car which he drove in Chicago on Thanksgiving Day 1945 during the re-enactment of the country's first automobile race, which he won 50 years ago in 1895 with his second car at 7 miles per hour.

After making some changes in still another of these 1896 machines, I took it to London and, on November 14, 1896, drove it in the London to Brighton Liberty Day Run, which celebrated the repeal of the English four miles per hour law. Mr. Herbert Thrupp of Thrupp and Maberly, noted London carriage makers, rode with me, and I have his affidavit that we were first to arrive in Brighton.

Late in 1896, I made for the Duryea Company, the fourth Duryea car design. In this I used an electric generator, for ignition without batteries, and a float-feed carburetor. These features are shown in my patents for which application was made on November 7, 1896, and June 14, 1897. I believe that these are also "firsts."

I took this car to London in June, 1897, and there became acquainted with the Honorable C. S. Rolls, later of the famous Rolls-Royce car. Mr. Rolls frequently rode with me, both as passenger and driver, and in July, 1897, wrote an article for the English magazine "Automotor," in which he praised the flexibility of the engine and stated that the car lacked most of the objections of other makes.

STEVENS
SANTA CLAUS will get around more quickly this year, as he has adopted the "Stevens-Duryea" automobile to speed him safely on his way. More than ever will St. Nick be welcomed, because he is loaded down with Stevens Rifles, Pistols and Shotguns for the youth of the land. Give your boy that "Stevens" he has been wishing for so long, and make this Xmas time a memorable one for him. "Stevens" means Safety, Accuracy and Reliability to the highest degree attainable, and makes Men out of Boys.
Our line is a large and varied one, comprising Rifles, Pistols and Shotguns.
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"It can be done!"—that new and attractive puzzle of ours, but will keep you guessing until you solve it. Try your luck these long winter evenings. Address "PUZZLE DEPARTMENT," sending two 2-cent stamps, and our puzzle is yours.
J. STEVENS ARMS AND TOOL CO., 395 MAIN ST., CHICOPEE FALLS, MASSACHUSETTS.

Fig. 20. A December 1903 advertisement of the two cylinder Stevens-Duryea designed and built by J. Frank Duryea.

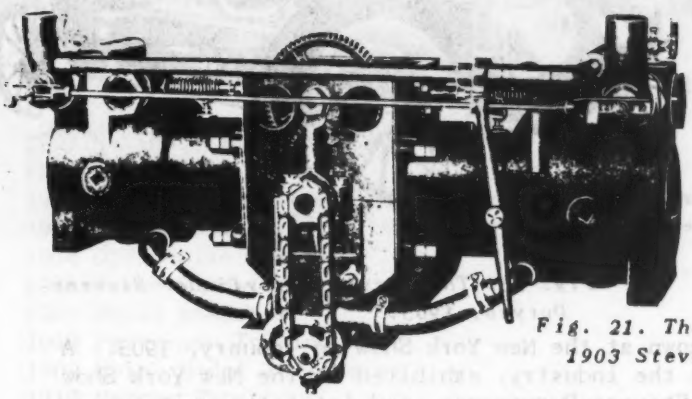
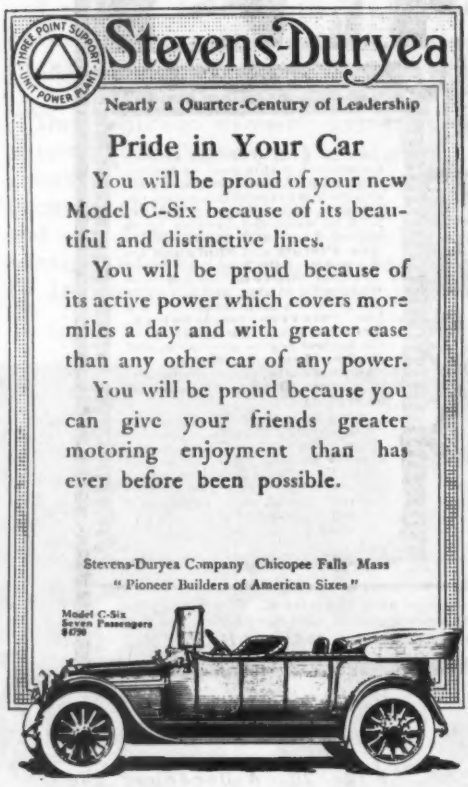


Fig. 21. The two cylinder engine of the 1903 Stevens-Duryea.

As most of you probably know, all this work has been claimed by Charles Duryea, who wrote Mr. Miller in 1938, and said in part; "I was the only Duryea until the Stevens-Duryea came along in 1902."

With the briefest of reference to the Stevens-Duryea, I shall close this over-long statement.

Starting in 1901 at the J. Stevens Arms and Tool Company in Chicopee Falls, Massachusetts, the first Stevens-Duryeas had a two-cylinder engine and three-speed transmission, located in the body beneath the driver's seat. These were profitably sold for three years, but seeing the growing influence of foreign design, I, in 1903, designed a four-cylinder motor, placed forward under a hood with a shaft drive to a bevel gear in the rear axle, For the engine I designed a multiple disk, dry plate clutch, and arranged to bolt the engine crankcase, clutch housing, and transmission housing together as a unit. This we called the "Unit Power Plant."


THREE POINT SUSPENSION UNIT POWER PLANT
Stevens-Duryea
Nearly a Quarter-Century of Leadership
Pride in Your Car
You will be proud of your new Model C-Six because of its beautiful and distinctive lines.
You will be proud because of its active power which covers more miles a day and with greater ease than any other car of any power.
You will be proud because you can give your friends greater motoring enjoyment than has ever before been possible.
Stevens-Duryea Company Chicopee Falls Mass
"Pioneer Builders of American Sixes"
Model C-Six
Seven Passengers
$6750
English Motor Car Company
1132 South Grand Avenue, Los Angeles, Cal.

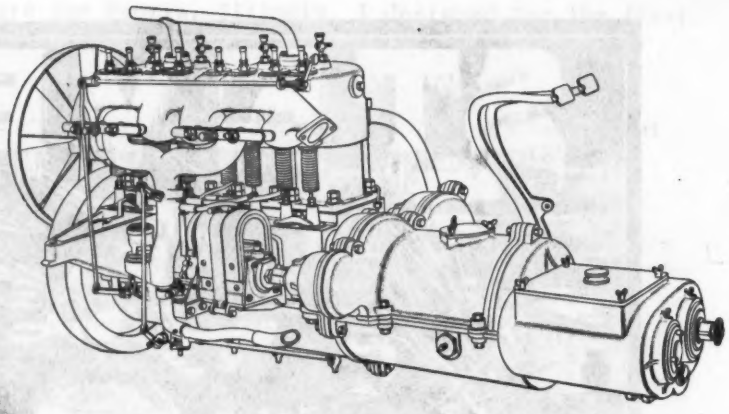


Fig. 22. The four cylinder unit power plant of the 1905 Stevens-Duryea.

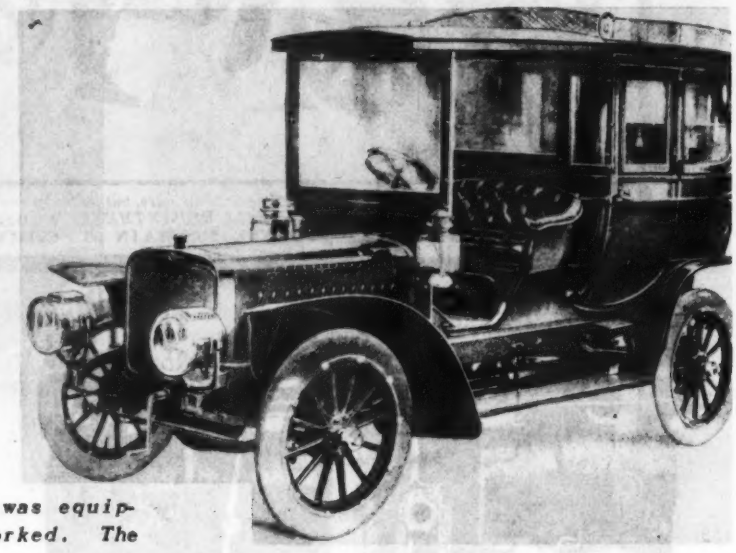


Fig. 23. The first six cylinder Stevens-Duryea, 1905.

Fig. 24. 1913 Stevens-Duryea. It was equipped with an air starter which worked. The engine responded immediately.

The car was finished in 1904 and shown at the New York Show in January, 1905. A year later a company now prominent in the industry, exhibited at the New York Show an exact copy of the chassis of this Stevens-Duryea car, and later the unit power plant, with multiple disk dry plate clutch, became substantially standard for the industry.

A six-cylinder car was added to the Stevens-Duryea line in 1906, and following that, sixes became the company's principal product. These cars were a source of very satisfactory profits to stockholders, but they were all high-priced cars, ranging from $2,500.00 for the four-cylinder car of 1905, to $6,500.00 for certain later models.

By 1915, it had become clear to me that mass production methods would eventually spell the doom of the high priced car. I was in ill health at the time, and having received an excellent offer from the Westinghouse Company for our plants in Chicopee Falls and Springfield, the offer was accepted, and I retired. This move I have never regretted.

J. FRANK DURYEA.

FIRST POSTWAR FIELD MEET WELL ATTENDED.

On Sunday, October 14th, 1945, nearly five hundred members and guests attended the first postwar field meet of The Horseless Carriage Club, which was held in the beautiful Patio of The Automobile Club of Southern California, Los Angeles. Nearly fifty antique and unusual automobiles were on display from ten o'clock in the morning until four o'clock in the afternoon. Rides in the antique cars were enjoyed by many of those present, and an impromptu parade was held in the afternoon, all cars participating.

Owing to the efforts of Art Austria, chairman of the Trophy Committee, and his hard working lieutenants, Herbert Briggs and W. L. Haines, many valuable prizes were available. These were presented to the winners of various events by President George E. Shafer and Lindley Bothwell.

Arrangements had been made by Ben Sharpsteen for the taking of colored moving pictures, as well as still pictures. Some of the pictures appear in this issue. The movies will be available for showing at the Annual Business Meeting in February, 1946.

Some of the highlights of the meeting were; Floyd Clymer's demonstration that he can still ride a motorcycle. (Floyd participated in many motorcycle racing events in the early days). - - Ray Nelson piloting the 1913 Stanley Steamer round and round the track at high speed, backward. - - The whistle on John O'Donnell's Doble Steamer, which could be heard fifty miles in any direction. - - Ransom Matthews could be located at any time, fixing the tires on his big 1922 Locomobile. - - Ray Nelson's sleek Cord Convertable. Formerly owned by Tom Mix, the car in which he was killed just outside of Phoenix, Arizona, several years ago. - - Half a dozen assistants holding Edward Cunningham's one-cylinder Success high-wheeler down while he cranked it.

Cars at Meet, with names of owners, are as follows:

1898 National Electric Roadster	Bernard Rademacher
1903 Oldsmobile Roadster	Richard Teague
1904 Success High-wheeled Roadster	Edw. Cunningham
1906 Reo Roadster	John Carra, Jr.
1906 Oldsmobile Roadster	Herbert Briggs
1907 Brush Roadster	Franklin Thompson
1907 Bursh Roadster	A. O. Kott
1909 Patterson Touring	Ben Sharpsteen
1909 Buick Model 10 Touring	Harry Johnson
1910 Mercer Raceabout	Bob Busby
1910 Franklin Touring	W. L. Haines
1910 Brush Roadster	Mel Anderson
1911 Marmon Speedster	Herbert Royston
1911 Hupmobile Roadster	Lindley Bothwell, Jr.
1911 Maxwell Roadster	Bernard Rademacher
1911 Ford Touring	Dr. Geo. E. Shafer
1911 Haynes Touring	Thos. C. Archibald
1912 Packard 6 cyl. Touring	Art Austria
1913 Cadillac Coupe	Art Twohy
1913 Ford Touring	Seward Cole
1913 Stanley Steamer, 19 H.P. Touring	Ray Nelson and Earl Petzold
1913 Buick Touring	Louis Combs
1914 Cadillac 8 cyl. Touring	Art Austria
1914 Reo Touring	Bob Lingo

AUTOMOBILES AT OCT. 14TH FIELD MEET, *(Continued)*.

1914 Reo Touring	David Slaff
1914 Cadillac 8 cyl. Touring	Charles Patterson
1915 Studebaker Touring	Alfred Lewerenz
1915 Ford Touring	Paul Denison
1915 Fiat-Portola Racer	Herbert Prentice
1916 Detroit Electric Convertable	Jamison Handy, Jr.
1917 Indian Motorcycle, 2 cyl. Horizontal.	Horace Clarkson
1917 Dodge Touring. World War 1 Army car.	Ray Nelson and Earl Petzold
1919 Dodge Sedan	John McGuire
1922 Locomobile Touring, 6 cyl.	Ransom Matthews
1923 Wills St. Claire Brougham	Mrs. Harry Johnson
1923 Franklin Sedan	Albert Brouse
1925 Duesenberg Touring	Edw. Cunningham
1925 Dodge Sedan	M. E. Lipscomb
1926 Ford Coupe	Robert L. Mosher
1927 Ford Touring	Wm. H. Williams
1936 Mercedes-Benz Convertable	Lonnie Ried
1937 Cord Convertable	Ray Nelson
- Tenebet Steam Conversion.	Ed. L. Tenney

FOR SALE.

American Underslung, 1915, 37x5 good tires, top, O. K. mechanically, low mileage, needs paint, $1500. Cadillac Coupe, 1913, fine condition throughout, just spent $69. overhauling, good 37x5 tires, $1500. Cadillac, one cylinder, rear entrance tonneau, fine mechanically, 30x3 new tires. This is the only rear entrance job for sale on the Pacific Coast, $1200. Reo, one cylinder, 1906, $250. Haynes Apperson, two cylinder, about 1903, $650. Buick White Streak Roadster, all complete, but needs work, $450. Franklin 1910 Roadster, fine mechanically, needs paint, all original except lamps, $650. Packard, 1907, 4 cylinder chassis only. If you like to work you will find plenty on this one, $275. Ford, Model T, tonneau missing, also needs work, about 1912, unused brass radiator, $125. Maxwell, two cylinder, about 1906, brand new paint, tires and upholstery. Fine mechanically $750. Buick 1913, touring. New paint Fine mechanically. Top and windshield. All original $750. Also have stored in museum in Duluth, Minn. International five passenger high wheeler, solid tires. Said to be a brand new car, $800. Stored in same place, Schacht Roadster, high wheeler, solid tires, $650. Photos of above cars, 50¢ each. Large stock of lamps all brass. Acetylene headlamps, $69. pair, up. Oil sidelamps $40. pair up. Rushmore headlamps, small $100, pair. Mercer type $150. pair. Brass tail lamps, $35. each. Brass horns (new) with bulbs and flexible tubes, $45. each. Other horns without bulbs $25. each, up. Magazines, Automobile Trade Journals $6. each. Two bound volumes of Motor for 1907 and 1908, (12 numbers each) complete with ads, perfect condition. Arthur E. Twohy, 400 N. Kenmore Ave., Los Angeles 4, California.

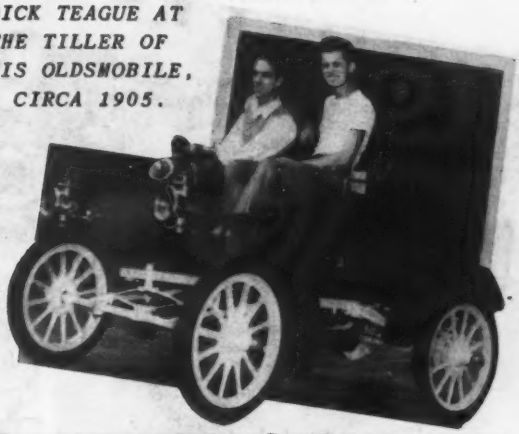
Peerless Touring, 1909, Four cylinder, Stutz Touring, 1916, 16 valve, 4 cylinder. Stutz Roadster, 1918, 16 valve, 4 cylinder. $500. for all three. Ray H. Smith, 3405 Locust Ave., Long Beach, California.

Rolls-Royce. 1932. Originally owned by movie actress Peggy Fears. Jerry Hewitt, 2029 Oak Street, Los Angeles 7, California.

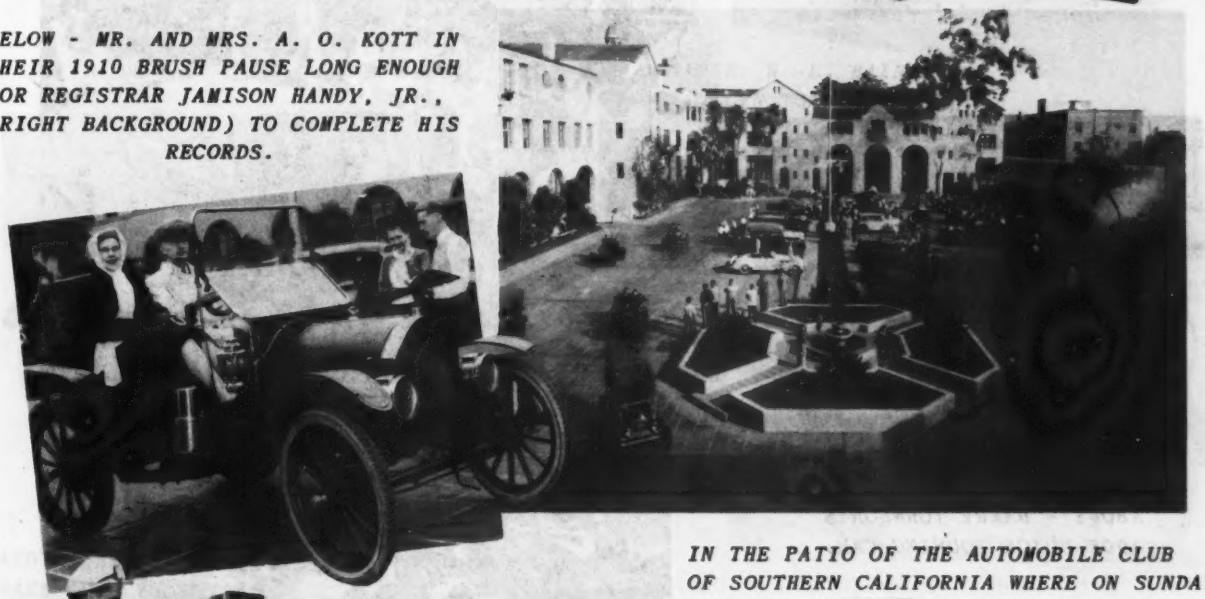
Ford Touring, 1914. Top, tires, brasswork and mechanical condition good. Original license plates. Neal Bladen, 1436 Avon Park Terrace, Los Angeles 26, California.

1913 STANLEY STEAMER OWNED JOINTLY BY RAY NELSON AND EARL PETZOLD.

DICK TEAGUE AT THE TILLER OF HIS OLDSMOBILE, CIRCA 1905.

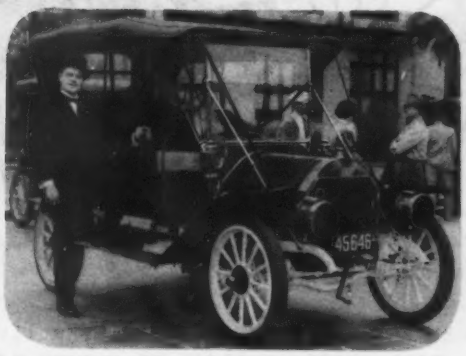


BELOW - MR. AND MRS. A. O. KOTT IN THEIR 1910 BRUSH PAUSE LONG ENOUGH FOR REGISTRAR JAMISON HANDY, JR., (RIGHT BACKGROUND) TO COMPLETE HIS RECORDS.



IN THE PATIO OF THE AUTOMOBILE CLUB OF SOUTHERN CALIFORNIA WHERE ON SUNDAY, OCTOBER 14TH, 1945, THE HORSELESS CARRIAGE CLUB MET FOR AN OUTING.

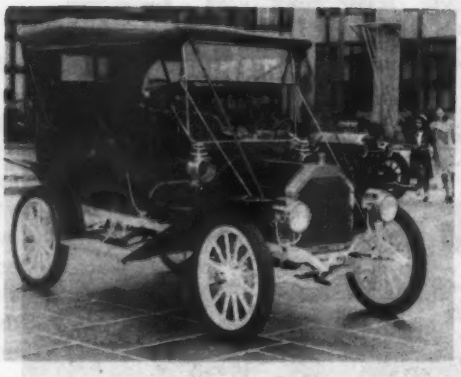
BELOW - BOB LINGO POSES BESIDE BEN SHARPSTEEN'S 1909 PATERSON.



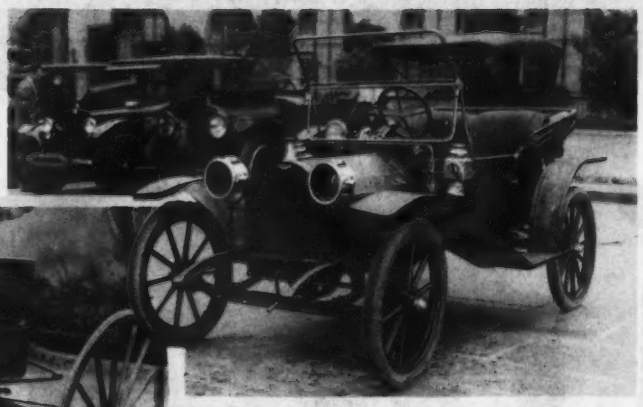
JOHN CARRA JR., LENDS A HELPING HAND BEFORE WINDING UP HIS 1907 REO ROADSTER.

AT THE LEFT, MISS RADEMACHER TAKES A FRIEND FOR A SPIN IN HER DAD'S NATIONAL ELECTRIC.

BELOW - MEMBERS OF THE HORSELESS CARRIAGE CLUB AND THEIR GUESTS LOOK OVER THE OLD VETERANS LINED UP IN THE PATIO OF THE AUTOMOBILE CLUB OF SOUTHERN CALIFORNIA. SUNDAY, OCT. 14TH, 1945.

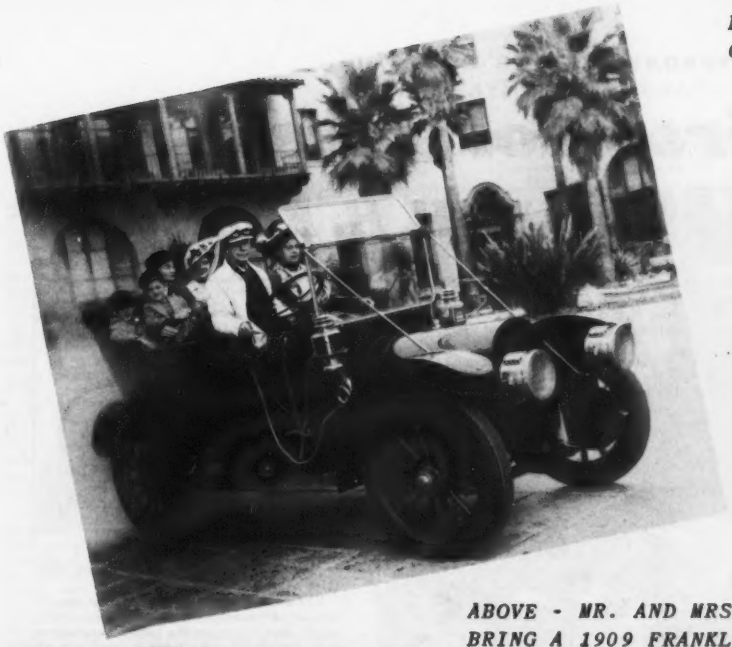


ABOVE - HARRY JOHNSON'S 1908 BUICK TOURING CAR.

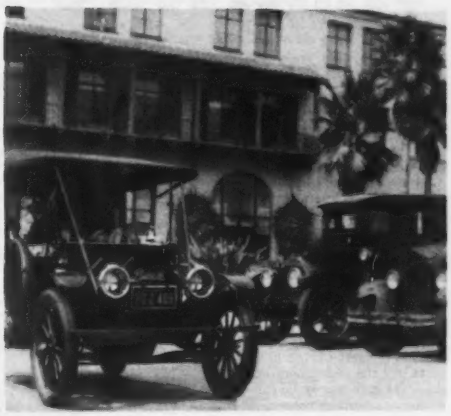


ABOVE - LINDLEY BOTHWELL, JR'S., HUPMOBILE, CIRCA 1911. IN THE BACKGROUND, ART AUSTRIA'S PACKARD AND MRS. HARRY JOHNSON'S WILLS SAINTE-CLAIRE.

AT THE LEFT, ED. CUNNINGHAM'S SUCCESS HIGH-WHEELER, CIRCA 1906.



BELOW - LOU COMBS AT THE WHEEL OF HIS 1913 BUICK. IN THE BACKGROUND. - ART TWOHY'S 1913 CADILLAC COUPE.



ABOVE - MR. AND MRS. W. L. HAINES BRING A 1909 FRANKLIN TONNEAU FULL OF THE OZRO SMITHS TO THE MEETING OF THE HORSELESS CARRIAGE CLUB HELD IN THE PATIO OF THE AUTOMOBILE CLUB OF SOUTHERN CALIFORNIA.

BERNARD RADEMACHER DRIVES HIS MAXWELL, CIRCA 1907.

HERBERT BRIGGS PROUDLY OBLIGES CAMERAMAN AS GUESTS ADMIRE HIS 1906 OLDSMOBILE.

MEL ANDERSON CUTS A DEFT TURN IN HIS 1910 BRUSH.

HERB ROYSTON'S 1911 MARMON SPEEDSTER TAKES THE CENTER OF THE STAGE WHILE BEYOND IS JAMISON HANDY, JR'S., 1916 DETROIT ELECTRIC CONVERTIBLE. TO THE RIGHT IS DR. POULEUR'S HI-WHEEL BICYCLE.

America's First Horseless Carriage Race, 1895—By H. H. Kohlsaat

IN MAY, 1895, in the Chicago Club, I picked up a copy of L'Illustration, of Paris, containing an account, with illustrations, of an automobile race between Paris and Bordeaux which had taken place a few weeks before. It gave me an idea. On my return to The Times Herald office I purchased a copy of L'Illustration and called into my room Frederick U. Adams, known to the newspaper profession as Grizzly Adams. Mr. Adams had a mechanical twist of mind, rare in a reporter. I showed him the report of the French race and suggested that The Times Herald get up a contest in Chicago of horseless vehicles. Adams was enthusiastic and at once drew up a plan which I indorsed and published. The Times Herald offered five thousand dollars in prizes and five thousand dollars to pay the preliminary expenses.

The race was to be run July 4, 1895. Some sixty contestants entered the lists. The interest of inventors was great. Most of them were without financial means and made my life a burden, showing me their drawings and asking for money to develop their ideas, so I asked President Cleveland to have the War Department take charge of the experiments and race. He instructed General Miles to appoint someone to supervise the contest.

My appeal to Mr. Cleveland was based on the belief that the greatest use of the motor wagon would be for army and commercial trucks. The Times Herald made the prediction that in twenty years horses would be used for pleasure vehicles only.

The President approved of General Miles' appointment of Gen. Wesley Merritt. He came to Chicago and I turned over the management to him. General Merritt chose Henry Timken, a carriage manufacturer, and Prof. John P. Barrett, head of the Electricity Department of Chicago, to act as judges with him; and as assistant judges, Leland L. Summers and John Lundie, civil engineers; Col. M. J. Ludington, United States Army; Dr. Allan Hornsby, and C. F. Kimball, carriage manufacturer of Chicago.

A testing apparatus was set up. It was unique from the fact that the result to be obtained had never been sought anywhere else in the world. It was designed by Leland L. Summers, the twenty-six-year-old editor of Electrical Engineering, and John Lundie, a young Englishman. Upon the two young men fell the bulk of the work of showing the consumption of fuel and the efficiency of the machines. A platform with a 15 per cent incline was built and each machine entering was subject to the test.

Ditched by a Nervous Farmer

WHEN July Fourth arrived there was only one machine ready—the Haynes-Apperson, of Kokomo, Indiana. As it was impossible to have a contest with one machine, the time was extended to Labor Day, in September. In August I was again requested to postpone the date, so fixed Thanksgiving Day, November twenty-eighth.

There was considerable opposition to calling the horseless carriage "automobile," as the name was too Frenchy, so The Times Herald offered five hundred dollars for a name, and "motocycle" was awarded the prize.

October 15, 1895, two ambitious young men started a magazine, calling it the Motocycle. It was the first of its kind published in America. The Horseless Age, of New York, was started November first, fifteen days later. The Motocycle issued two numbers only, October and November, and gave up the ghost. There was so little general interest in the new motive power, outside of the manufacturers of carriages and buggies, that the subscribers were few, and advertising nil.

Duryea Wagon Motor, Winner of The Times Herald First Prize
Above—An Early Haynes

A purse of five hundred dollars was, while waiting for the Thanksgiving Day event, put up for a race between the H. Mueller Benz Gasoline Motor, of Decatur, Illinois, and the Duryea Gasoline Motor Wagon, of Springfield, Massachusetts. The course was to Waukegan, Illinois, and back, a distance of ninety-two miles, with a time limit of thirteen hours. The start was made November second, from Washington Park. The race ended at the Grant Monument in Lincoln Park. Mr. Mueller was awarded the prize, making the round trip in nine and a half hours.

The Duryea motor ran into a ditch to avoid a farmer who turned his horses to the left instead of the right. He said he was so scared to see a buggy without any horses hitched to it coming up the road behind him, he did not know what he was doing. To avoid a collision Mr. Duryea, who was driving this motor, drove into the ditch, hoping to climb up the slight embankment, but broke a wheel and gave up the race. He hauled his machine to the nearest depot and shipped it to Chicago, where it was repaired.

This car entered the real contest on Thanksgiving Day, winning the first prize, two thousand dollars.

The night before Thanksgiving, two or three inches of snow fell, making a severe test for the motors. The Times Herald arranged with the park commissioners to give the machines the right of way, as up to that time they had been barred from the boulevards to avoid frightening the horses. The official course was from the World's Fair German Building, in Jackson Park, to Evanston and return, fifty-three and a half miles.

The evening before the race eleven competitors out of the sixty-odd entrants declared they would start, but when the motors were sent on their fifty-three-and-a-half-mile run only six reached the starting point, the others breaking down en route.

The six lined up at the post were:

The Duryea Wagon Motor Company, Springfield, Massachusetts, using gasoline;

The De La Vergne Refrigerator Machine Company, gasoline;

The Morris and Salom, Philadelphia, electric;

H. Mueller & Co., Decatur, Illinois, gasoline;

R. H. Macy, New York, gasoline;

The Sturges Electric, of Chicago.

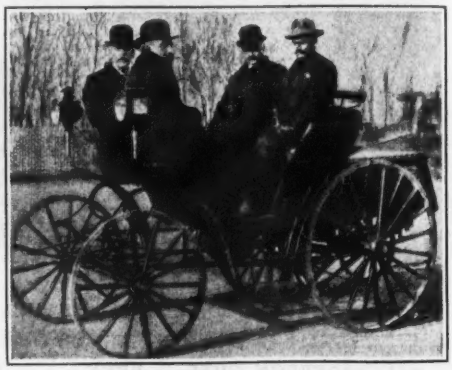
Racing at Five Miles an Hour

THE Haynes-Apperson machine, now in the Smithsonian Institution, Washington, as America's first horseless carriage, started for Jackson Park early in the morning, fully intending to be in the race. In making a turn at Indiana Avenue and Thirty-eighth Street to avoid a street car, it smashed a front wheel and had to give up entering the race. At 8:30 A.M. several thousand people were waiting at Jackson Park and the Midway to watch the contest. Gasoline engines were to be pitted against electric motors. The boulevards were crowded with rigs and cutters, dashing up and down, looking for the horseless carriages. At 8:35 the word "go" was given by Judge Kimball, and J. F. Duryea jumped into his wagon and passed through the crowd. It won the first prize by returning to the starting point at 7:18 P.M., doing the fifty-three and a half miles in ten hours and twenty-three minutes, an average of five and a quarter miles an hour.

A few minutes after the Duryea machine left for Evanston the Mueller was cheered by the crowd as it started. It returned to the starting post at 8:53 P.M., crossing the line second in the race, and winning second prize.

(Continued on Page 69)

De La Vergne Hunting Trap



Mueller Benz Motor

AMERICA'S FIRST HORSELESS CARRIAGE RACE, 1895

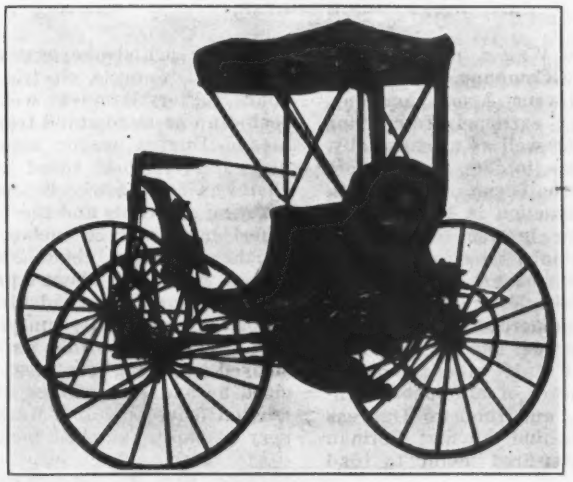
(Continued from Page 21)

The thousands lining the boulevards were not greatly impressed with the future of the motor car. In the first place, the love of the horse, an instinct of the human race, prejudiced the crowd against the ugly motors, which were generally buggies with the shafts taken off. Again, the constant breakdowns did not add to the interest of the new toy, as it was called.

The Chicago Tribune, with ridicule, was the only paper that mentioned the race at all and echoed, I believe, the general sentiment by printing three inches of space under the caption Old Dobbin is Still in the Ring.

The four other machines that started broke down and did not finish the race. Out of the sixty-odd entrants of America's first horseless-carriage race only two were able to go the fifty-three and a half miles with an average speed of five and a quarter miles an hour.

In 1914 I visited Detroit and carried a copy of The Motocycle of 1895. A friend suggested I show the magazine to Henry Ford, and arranged a meeting by telephone. After lunch I showed Mr. Ford the book. He went over it page by page with eager interest and remarked, "I never wanted anything so badly in my life as to go to that race, but I could not get anyone to loan me the car fare to Chicago." My banker friend said the day he made the remark Mr. Ford had twenty-eight million dollars in bank subject to his check.



One of the First Automobiles—a Duryea

Official Report of the Race

FREDERICK U. ADAMS, who had charge of the race for H. H. Kohlsaat, said that the contest was satisfactory in every particular and that the tests threw those made recently in France far in the rear. "The Paris-Bordeaux race," he commented, "was worthless from a scientific standpoint, but the contest of today may result in the establishment of good data concerning what many believe the vehicle of the future. The progress of the preliminary tests has been watched by thousands of manufacturers in every part of the world, and there is no doubt that there will be a great interest in the manufacture of these horseless vehicles, now that it has been demonstrated what can be done with them."

Several Breakdowns

THE victory of the Duryea machine was all the more remarkable as this was the one which broke down in the minor race a month before. Under the box of the vehicle and at the rear there were two chains which broke several times, but Mr. Duryea succeeded in repairing them so as to avoid much delay. This inventor was working on two machines which he expected to enter for the race in the place of the one which was successful, but the time was not long enough to allow of their completion.

The Morris and Salom, Philadelphia, electric, and the Sturges Electric Motocycle, Chicago, broke down shortly after leaving the starting post and before they got out of Jackson Park, leaving only four in the race when the motocycles reached the Michigan Boulevard.

The first motocycle to come into view at the first relay station, Grace Street and Sheridan Drive, several miles from the starting point, was the R. H. Macy carriage.

Several minutes' stop was made while the operator looked over his machinery. The wagon had butted into the rear end of a street car it was following too closely and this had thrown the gear out of shape.

Twenty-two minutes later the Duryea motocycle passed without stopping or even slacking its speed. The umpire yelled out as this wagon bowled along the Sheridan Drive going northward: "How far ahead is the other fellow?" A policeman told him, "Twenty minutes, sor." "We'll overhaul him pretty soon," said the man in the wagon.

At Evanston great interest was shown in the race. A large number of people gathered near the Industrial School and received the first comers with cheers. The Macy machine was then slightly in the lead. Two blocks farther on, just after they had turned north on Forest Avenue, the Duryea motocycle was pressing the leader, and in accordance with the rules of the contest the Macy drew to one side and allowed the faster competitor to pass. The groups of people along Forest Avenue applauded the unusual sight of one horseless carriage forging ahead of a rival. Up the gentle incline from Forest to Chicago Avenue the motocycles ran easily. Shouts of encouragement from the spectators greeted them along Davis Street as they made the turn on Chicago Avenue and started upon the return trip to Jackson Park.

Following the progress of the motocycles was a cutter containing Frederick C. Hass, who had abandoned the race with the De La Vergne machine at Michigan Boulevard and Sixteenth Street. In crossing the tracks of the railroad near Calvary Cemetery the cutter was just ahead of the Macy machine. The sleigh's runner caught in a frog and the occupants of the cutter were thrown on the tracks. Before they had time to pick themselves up and count bruises the Macy wagon came along. The steering gear of the motocycle had given out and as the wagon came opposite the overturned sleigh it switched suddenly into the cutter. No damage was done, however, with the exception of a few bruises, and the motocycle passed along.

While coming back through Rogers Park the Macy carriage met a hack which did not give the right of way. In trying to turn out, the tire of the motocycle slipped and its front wheel collided with the rear wheel of the hack. By the collision four spokes were badly chipped and the steering gear bent so as to be almost useless. Fortunately the gauge of the vehicle was the same in width as the street-car tracks, and by keeping the car track it managed to reach the second relay station a mile farther on.

The third and last motocycle to pass the second relay station was the Mueller machine. Several stops had been made to oil and to fix the clutch, which had been bent by the rough roads. After replenishing the fuel and repairing, the machine started again and was working smoothly as it disappeared around a curve in Clark Street.

Duryea Reaches Douglas Park

WET and cold, darkness already coming on, and not a motocycle in sight, the small boys and the little girls and the older folks went home. Consequently when, a few minutes before six o'clock, the Duryea motor came through Douglas Park, laboring with a very bad roadway, there was no one to greet it on California Avenue but a representative of the Times-Herald. Ahead of the machine drove the umpire, and after the good wheeling on California Avenue was found he had a lively time keeping ahead of the vehicle. On Thirty-fourth Street and the first approaches to Western Avenue the roadbed was comparatively hard, and the motor made magnificent time, traveling one pace at the rate of eight miles an hour with ease. Lacking spectators, except here and there a solitary workman on his way home, or the belated watchman of one of the ill-smelling soap factories of the district hastening to his odorous place of duty, the men on the motor gave vent to war whoops, cheers, cat calls and other manifestations of joy over the victory they were winning. Western Avenue Boulevard was not so easy going. The path was poorly broken and the underbed rough. Progress to Fifty-fifth Street was slow and tedious, but the motor held to her work without a break. As the boulevard was turned, onto the final run, on the home stretch the cry rang out "This is 5:5:55."

To Ashland Avenue but one sleigh was passed. The darkness was on, and hidden behind two horse-moving rigs the motocycle was comparatively unnoticed. But at Halstead a woman crossing the street with an escort caught sight of the strange rig and jumped back from the crossing, frightened. On the opposite corner at the drug store a crowd of men cheered. Young boys began to chase the motocycle and shout, but they could not keep up.

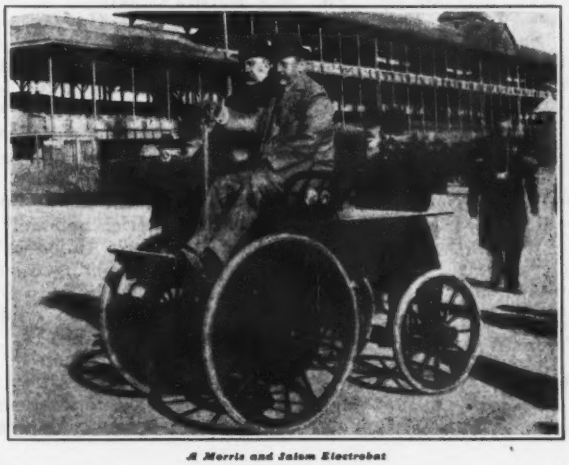
No delays were met with but stoppage for gasoline and the holding of the motor at the crossing of the Fort Wayne Road by passing trains for four minutes. After this the run to South Park and then to the starting line of the morning was uneventful. Not fifty people saw the last stages of the finish or knew that the Duryea had established a world's record in the capacity of a motocycle to conquer even King Winter himself. It was just 7:18 when Frank Duryea threw himself out of the seat of the motor and announced the end. His hand was grasped by the few who saw him cross the line. The congratulations were hearty. The crowd of travelers were hungry. The Duryea was wheeled about and started for her quarters on Sixteenth Street.

At 8:53, with John Lundy, one of the judges, holding the watch, the Mueller motor crossed the line, second in the race, and, considering the lateness of the hour at which she started, really only twenty-four or twenty-five minutes behind the Duryea. Her journey through the parks and boulevards of the city proper was even more lonesome than that of the Duryea to the spectators. An enthusiast might be found at some point who had waited all the afternoon for the sight, but these were few. The gayeties of the evening had called away the large and jolly crowds of the morning, and only the officials of the race and the reporters saw the end of the great battle against the snow and a too kindly sun.

Lieutenant Samuel Rodman, umpire for the Macy motocycle, reported shortly after twelve o'clock that the Macy had been compelled to quit the race at California and Ogden avenues at 6:15 P.M. At that time they were only twenty-five minutes behind the Duryea machine, and were ahead of the Mueller motocycle. Their motor gave out at that point, and although they labored with it for five hours, or until 11:30, they were unable to make it run satisfactorily again. They consequently abandoned the race. The Mueller machine passed them while they were trying to repair the defects of the motor, but they could not follow it.

Lieutenant Rodman was convinced that the collision which the Macy had on Evanston Avenue early in the day with an ignorant, obstinate coachman, and which injured the steering apparatus, so destroyed the adjustment of that important mechanism that after that time the motor could not be run at its full capacity and eventually broke down altogether. Still, at California and Ogden avenues, where it quit, the Macy was second in the race, with a fair show of overtaking the Duryea and producing a neck-and-neck finish.

Thus closed America's first horseless-carriage race.



A Morris and Salom Electrobat

Confession

I LIKE to see the home team win
Whatever game they're playing in,
And any time they lose a yard
I want to see them come back hard.
I can't abide the cultured throng
Who always say our crowd is wrong—
Those high, defeatist Sons of Light
To whom their land is never right.
I'm no "true sport"; I would not choose
To see my friends and neighbors lose.
Though worth must be the only test,
I want our own to be the best.
I hope that we're the best by far,
And, worst of all, I think we are!

—Arthur Guiterman.

JULY 1, 1903

The Stevens-Duryea Automobile

HUGH DOLNAR.

The Stevens-Duryea Wagon, as now made by the Stevens-Duryea Company, at the "Hill Plant" of the J. Stevens Arms Company, Chicopee, Mass., is an extremely interesting machine, historically as well as mechanically, as it is the final outcome, to date, of the labors of J. Frank Duryea, who began original work on motor wagon construction in 1892, in connection with his elder brother, Charles E. Duryea, and has continued his efforts in that line from then to now, and has at last, after encountering many obstacles, reached an apparent certainty of commercial success.

The names of these two Duryea Brothers, Charles E. and J. Frank, take prominent place among the pioneers of automobile construction in America, and the two Duryeas were but very little behind the first German appliers of the cylinder-fired motor to road wagon driving.

The story of the automobile work of the Duryea has never been told, and may appropriately be given here, going before the description of this distinctly American wagon, which is the latest production of the younger brother.

In 1890-2 Charles E. Duryea was connected with bicycle manufacture at the Ames shops, Chicopee, Mass., and J. Frank Duryea was working as a machinist and toolmaker on bicycles for the Ames Company.

In the summer of 1892 Frank built a motor phaeton at the shops of John Russell, Springfield, Mass., from hand sketches furnished by Charles.

The motor had a single air-cooled cylinder, 3½-inch bore by 5-inch stroke, with a second or auxiliary piston, moving in relation to the main or working piston so as to entirely cleanse the cylinder of burned product after each working stroke hot tube ignition.

This wagon could run in some degree, but was not fully satisfactory.

Charles E. Duryea left Springfield in September, 1892, leaving this first of the long series of varied Duryea wagons with Mr. E. F. Markham, of Springfield, who was financing the then dubious venture, to continue his interest in bicycle and tire manufacture at Peoria, Ill., leaving Frank in charge of the work.

In connection with Markham, Frank Duryea then threw away most of the first wagon except the phaeton body, and constructed a second wagon with new axles, Sarven wood wheels, steel tires, 44 inches front and 48 inches rear, stationary rear axle, side chains, same general transmission as before; the first balance gear, which was very light, having been designed for a Columbia tricycle, being replaced with a new and heavier one, and the motor being new, more than twice the power of the first, and having a single cylinder, 4½-inch bore by 5-inch stroke; water jacket cast with cylinder, Otto-cycle, electric ignition, hammer spark, battery Sampson wet cells, salamoniac, sealed up so as to stand transportation. This second Duryea wagon retained the friction disk and free-belt speed change, with side chains to driving wheels from a countershaft carrying sprockets and the balance gear. The wheel base was 56 inches, gage 54 inches, weight of wagon about 900 pounds. This wagon was begun about April 1, and finished and placed on the road about September 1, 1893, and could really run pretty well, but the disk speed change told its usual tale of destroyed engaging surfaces, and Frank decided he had seen enough of it and took the friction drive out, and Markham, not feeling very sanguine, stopped money supplies.

After consulting was Charles, Frank Duryea then proceeded on his own slender resources to rebuild the transmission, changing the friction disk to two forward speeds and reverse geared transmission, with friction clutches, same general form of drive as that of the present Stevens-Duryea, which has three speeds forward and a reverse, spur gears always in mesh and friction clutch engagement.

This third modification put The Duryeas in debt, but it gave them a really self-driving wagon, which could and did run up all the Springfield hills. The tires were yet of steel, and as this wagon was on the road in February, 1894, with snow and ice on the ground, spiked steel tires were made to clamp on the driving wheels, so they would not slip, and thus rough-shod the wagon went anywhere.

At this juncture a capitalist, Mr. H. W. Clapp, was brought into the enterprise, and Frank Duryea went on to build a fourth wagon, all except the first being wholly of his own design, though there were yet existing business relations between himself and his brother Charles.

In this fourth Duryea wagon, as first designed, April, 1894, the motor had two horizontal cylinders, 2-cycle, set crosswise of the wagon, with bevel gear transmission to a countershaft, with three geared speeds forward and reverse, friction clutched, driving a second shaft, gears always engaged, and a balance gear in the divided rear axle, with chain transmission from the speed shaft. The ignition was electric, hammer spark as before, but the two-cycle failed to give satisfactory results, and was changed between November, 1894, and March, 1895, to 4-cycle, keeping the same crank case and crankshaft, and was finally patented June 11, 1895. This was the first Duryea wagon in which constantly engaged gears were used with friction clutches operated by a single cam shaft, carrying cams so constructed as to be operative in one direc-

tion and idle in the other direction of rotation, as is needful with a friction clutched speed change.

The Duryea wagon, as redesigned and rebuilt time and again by the persistent efforts of Frank Duryea, was now regarded as a really practicable vehicle, and was, in fact, fully the equal of anything in the world at that time, and in July, 1895, Charles E. Duryea came to Springfield to complete the organization of a company to manufacture. Clapp held an option, which was twice renewed after expiration by time limitation, without obtaining tangible results, and the whole matter reverted into the hands of Charles E. Duryea, who formed a company through the influence of the Springfield Board of Trade, Frank Duryea's strenuous exertions being recognized by a substantial interest in the new undertaking.

Fig. 1—Stevens-Duryea 2 or 4-Passenger riage, with drop front seat; wheel base, 65 inches; wheel gauge, 54 inches; wheels, 29 inches diameter; 3-inch tires, double tube, Fisk; weight, 1300 pounds; price, with hood, $1300; without, $1250.

This 1894-5 Duryea wagon was the winner of first honors and two thousand dollars cash prize in the historical Times-Herald automobile contest over a 56-mile course in the snow, Thanksgiving day, 1895.

In this contest the only wagon standing any chance with the Duryea was an imported Benz wagon, leather belt driven, and it was about an even thing between the two, the Benz being delayed at the start, and the Duryea having to repair a broken steering lever at a wayside smithy, but the Duryea made the best actual running time, and was the only wagon to return to its stable that day, and was correctly named as victor.

In 1895 Americans had just begun to take the automobile seriously, and the outcome of the Times-Herald event gave the Duryea wagon standing, but the good showing of the Benz belted drive over that snow-covered course set the Duryeas to thinking, and led them to take a step backward in the construction of a first lot of about 15 belted wagons, built at Springfield, Mass. This first lot of Duryea wagons built for sale had 2-cylinder motors, horizontal, 4-inch bore by 5½-inch stroke, water cooled, hammer spark ignition, with straight and crossed leather belt transmission. They were finished about May, 1896, and one of them won $3000 at the Ardsley Casino (1896) Decoration day run. New York City Hall to Irvington was the schedule of this second American automobile contest. This lot of wagons weighed from 1200 to 1300 pounds each. The price was about $1500, and they were all sold during the year. The first of this 1896 lot of wagons was shown at the Charitable Mechanics' Fair, Boston, that year, and run on the Hall floor, and some orders were taken there, but even then Frank Duryea was not suited with the belt drive.

The first Duryea Company soon developed two parties within itself, the controlling one in favor of selling shares as fast as possible, and the other, headed by the Duryeas, in favor of holding the company stock, and building and selling wagons for a source of revenue. This difference in views as to policy led to a final deadlock, the Duryeas keeping on in the shop and producing two or three wagons of new design, with a pair of opposed cylinders for motors, gear and chain transmission, from designs made by Frank Duryea in the spring of 1896, but not placed on the road until 1897, when

this new vehicle was shown in New York, and very favorably received by those who yet had faith in the future of the self-driven road wagon.

In 1896-7 the Springfield Duryea Company endeavored to form a company in England, and Frank Duryea, who made three trips to the other side with wagons, as he was accounted a very expert driver, made the best time by an hour in a rain and mud run from London to Brighton, November 14, 1896, the light Duryea wagon being by far the speediest bad-roads machine on English soil that day. The renowned Harry Lawson did not permit the English press to give the time made by the Duryea wagon in this London-Brighton event, but the American papers printed the true story.

No company was formed in England, the manager of the Duryea interests declining an offer of $200,000 capitalization in the hope of better terms, which were not obtained.

Frank Duryea returned from his third trip to England September 1, 1897, and passed most of the following winter in Toronto, Can., where the company endeavored to float the Canadian franchise, without success, and Frank Duryea finally severed his connection with the Springfield company in July, 1898, and at once began the construction of more experimental wagons, finally terminating a not altogether unfruitful connection in July, 1900.

Having now a fairly full experience and a little capital at his command, and having by no means exhausted his store of automobile conceits, Frank Duryea formed a working partnership with his chief draughtsman, Mr. W. M. Remington, and began a serious, leisurely and unhampered procedure, having for its object the production of the best road wagon for a moderate price, suitable for American roads and requirements, and completed three vehicles quite in accordance with his own standards, in March, 1901, and found himself at last in possession of a wagon which his widely extended experience fully approved, radically different from all others, which he was sure would give a good account of itself in any company on American highways.

Satisfactory arrangements were concluded with the J. Stevens Arms Company, of world-wide reputation, working about 1500 hands in two factories, at Chicopee Falls, Mass., one called the "water shops" and the other occupying the large buildings formerly used by the Overman Cycle Company, on the hill in Chicopee, and work on the Stevens-Duryea wagons was begun October 1, 1901, and the new model was completed in March, 1902, and 50 wagons were built and sold during the season of 1902.

The 1903 model, embodying various improvements, suggested by the thorough trying out of the 1902 Stevens-Duryea cars in the hands of inexperienced users, was completed in time to be shown at Madison Square Garden in January, 1903. Plenty of orders were booked, and the manufacture was pushed as rapidly as possible by the large resources of the Stevens Arms establishment, about 250 hands being employed on tools, fixtures and patterns, and in all that vast amount of costly detail preparation for regular manufacture, of which the purchaser is so wholly unconscious when he sees a new production placed on sale.

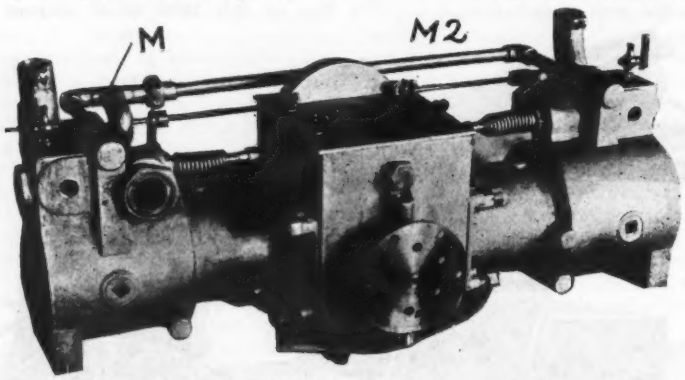


Fig. 2—Stevens-Duryea Motor—Fly Wheel Side. Two opposed cylinders, working on cranks at 180 degrees. The crankshaft terminates in an integral disk, to which the fly wheel is secured by bolts in the outer circle of holes, while the change-gear shaft flange is secured by bolts in the inner circle of holes. M. elbow to carburetor; M2, mixture supply pipe; bore, 4¾ inches; stroke, 4½ inches; compression, about 50 pounds; jump-spark ignition, advanced by spiral slot in shifting hub; weight of motor, 125 pounds without fly wheel; weight of fly wheel, 75 pounds; cast iron cylinders, aluminum crank box and cover, bronze plain bearing bushes in crank box, and bronze connecting rods; maximum R. P. M., 675.

Up to the date of this writing, April 30, 1903, about 50 Stevens-Duryea 1903 model wagons have been delivered to purchasers, and 450 more are being pushed as rapidly as possible to completion. Thirteen were turned out during the week ending April 25, and three wagons a day now seems close at hand, and while deliveries will be slow all through this season, owing to difficulties in obtaining bodies and tires, the company expects to be prompt in filling orders after this year's rush is over.

This story of the genesis and birth of the 1903 Stevens-Duryea model, although so imperfectly sketched here, will give some faint idea of the enormous amount of thought and labor which must be given to a new product in so difficult a class as the automobile, before a wagon can be shown which satisfies

its designer. Looking over this narrative, it is seen that while a very great number of modifications in motors, motor location, transmission elements and ignition devices, were tried, the ignition now used in the Stevens-Duryea wagon being the jump spark—Frank Duryea has had constantly before his mind's eye the friction-clutched, always-in-mesh, spur-geared speed change and reverse, except for the short time that the early success of the Benz belt drive led him astray. This Duryea-geared drive having a frictional engagement, so arranged that the driver cannot possibly go wrong in making changes, and having been tested in a large number of different constructions, is now undoubtedly one of the safest and most easily used speed changes known.

production he sought from the first, a simple, cheap, and easily managed light carriage, t. oroughly adapted to American requirements, and protecting its occupants from the action of the elements while conveying them swiftly, certainly and safely where they wish to be carried.

THE STEVENS-DURYEA MOTOR.

Two opposed cylinders, Otto cycle, working on cranks at 180 degrees, give the crankshaft a turning impulse through the greater part of the first half of each crankshaft revolution, and can be so well balanced as to impart no noticeable vibration to the carriage, while the impulses are so frequent as to make a comparatively light fly wheel answer every purpose.

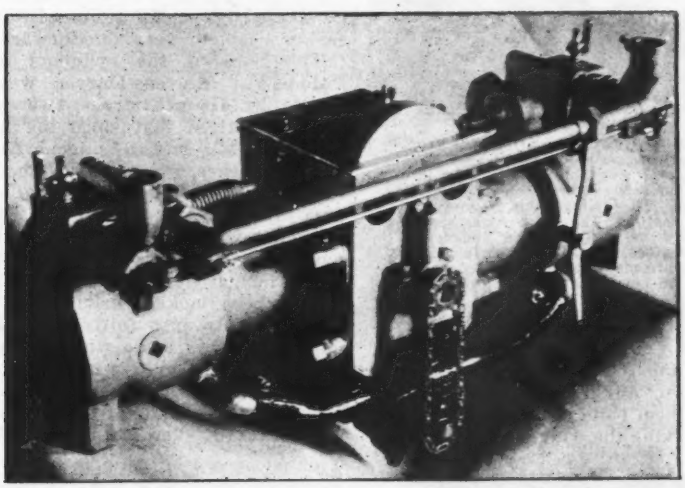


Fig. 3—Stevens-Duryea Motor—Pump Side. The spur-gear water force pump is driven by sprockets and chain from the crank shaft. The charge admission is throttled by moving the small sliding rod connected to the vertical lever (L) at the right. This small rod, just below the mixture tube, reaching horizontally from one cylinder to the other, carries valve lift limiting wedges at each end, which permit greater or less rise of the automatic inlet valves, according to the wedge rod adjustment. The crank case cap is secured by wing nuts, and can be very quickly removed and replaced.

The final choice of two opposed cylinders, set horizontally, as this form of motor must be because of its length, secures simplicity of construction in the highest degree, and also enables a balance so nearly perfect to be obtained that the vibration of the carriage can hardly be detected.

The motor is started from the seat, without much exertion, the steering is easy, and the running gear is perfectly flexible. Very large radiating surface is provided, made available by a rapidly forced water circulation, directed independently to the two cylinder jackets by a geared pump.

This is distinctively an American vehicle. The lines of the vehicle do not show a single trace of French influence. The weight, 1300 pounds with top, and the price, $1300, are both low, and the motor is so powerful that the Stevens-Duryea wagon headed the list of gasoline vehicles in the recent Boston Commonwealth Hill climbing contest, and Frank Duryea may congratulate himself on having, after ten years of hard work on a new problem in applied mechanics, at last reached the

The advantages of this type are many, and its simplicity and the fewness of ignitions required, are very strong points in its favor for moderate powers. The cylinders are small enough to be turned in starting without excessive effort, balancing is easy, a single cam suffices to drive the exhaust valves of both cylinders, and the general arrangement of the parts enables a very rigid construction to be obtained with small weight, by making the aluminum crank case support the crankshaft bearings. The motor is very completely shown in Figures 2, 3, 4 and 5.

The crankshaft runs in plain bronze bearings, seated in the aluminum crank case. While aluminum alloy is weak and has very little elasticity, it does not yield under much less than 10,000 pounds to the square inch of section, tensile and crushing resistance about the same, and so can well support the crank-journal brasses, provided the aluminum itself is rigidly confined. In this motor the crank case is abundantly supported, as the four substantial bolts which unite the crank case and the two cylinders pass entirely through

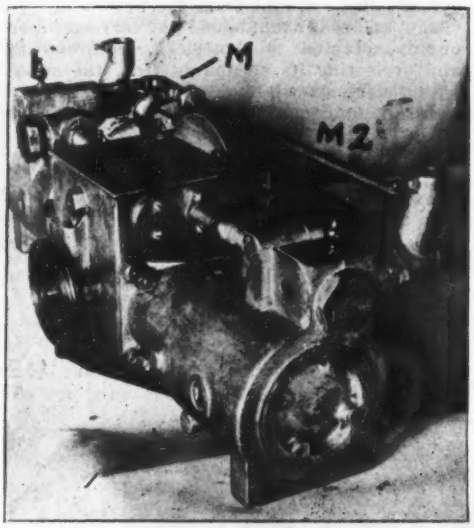


Fig. 4—Stevens-Duryea Motor—Oblique View, showing the exhaust valve cover, hexagon head both these parts being held by screwing into and the cylinder head, with spanner holes, up to a flange. The cylinder cover screws up the cylinder casting. The valve cover screws perfectly fitted by scraping, and sufficiently on a taper surface. Both these surfaces are packed joints are made, all being fitted metal water cooled to never change their form. No to metal.

the aluminum, the bolt heads being seated on one cylinder flange, and the nuts on the other, so that the aluminum is compressed between the two, and reinforced by the strength of the steel bolts themselves.

By merely slacking the wing-nuts, which are seen on top of the crank case cover in Figs. 2, 3 and 4, the bolts can be turned in their seats so as to release the cover, which can then be removed, carrying the holding bolts and nuts with it, so that there are no small, separated parts to mislay or lose. This gives access to the second motion shaft, valve cam and electrodes, all on top of the motor as it lies in the wagon, and fully exposed to both eye and hand.

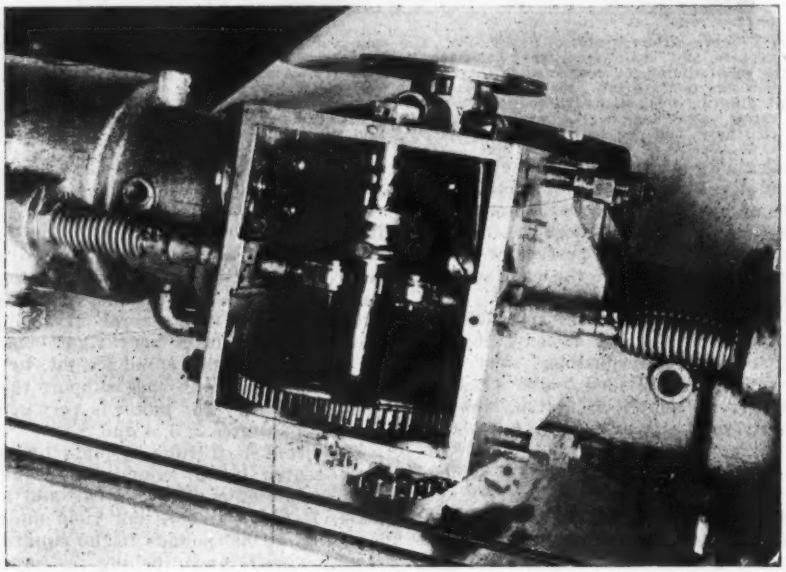
The piston rings are eccentric bored and snapped in.

The small tit seen in the centre of the shaft disk (Fig. 2) enters a corresponding seat in the gear-shaft, coupling disk, and insures centering when the disks are bolted together.

The automatic admission valve moves at right angles to the exhaust valve, and the elbow (M, Figs. 2 and 4) leads from the mixture supply pipe (M2) to the carburetor, which is lower down, near the forward cylinder.

The bore of the cylinders in the 1903 "Model L" Stevens-Duryea wagons is 4¾ inches, by 4½-inch stroke, two cylinders. It will be noticed that since the first Duryea wagon, 1892, had a single-cylinder motor, bore 3½ inches, while the 1903 model has two-cylinder 4¾-inch bore, the ratio of piston area of the first and last is as 12¼ is to 45⅛, or well towards four times as much driving power for the last wagon as for the first. The principal trouble with motor wagons has always been lack of driving power, and we are now only just fairly beginning to give them the ability to do what is expected.

Again, in the matter of ratio of bore and stroke, the first Duryea motor piston diameter was 3½ inches, and the stroke was 5 inches, ratio 7 to 10. The last, piston 4¾ diameter



No. 5—Plan of Motor—Crank Case Cover Removed, showing spark advance regulating bell crank at top and right inside the case. The second-motion shaft carries the single cam which operates the exhaust valves of both cylinders and a pin in the shaft serve to advance or which forms a contact with two electrodes insulated on vulcanized fibre blocks at the case sides. A spiral groove in the disk hub and the spark disk, which carries a long pin, retard the spark time by movement of the disk hub, through the action of the bell crank.

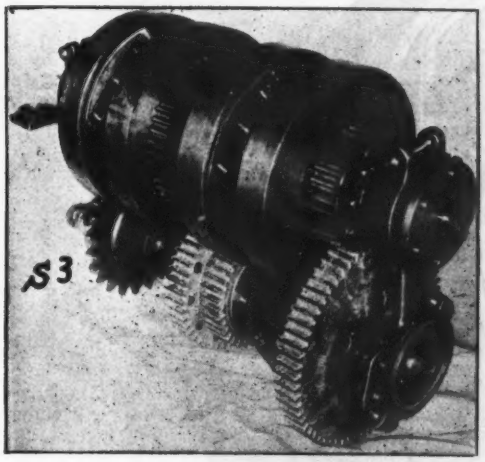


Fig. 6—Speed Change and Reverse. The disk of the upper shaft at the right has a seat which fits a centering tit on the end of the crankshaft, so that certainty of accurate alignment is had when the disks are bolted together, making the top shaft a continuation of the crank shaft. The top and bottom shafts are linked together with radius links at each end. The upper gears are cast iron, friction clutched to shaft engagement. The lower gears are rawhide, making the change gear noiseless. The clutch friction blocks are self-equalizing, so as to have always the same pressure on each.

by 4½ stroke, gives a ratio of 19 to 18. Fuel economy is not the thing the wagon builders are now looking for. There must be ample power, which means abundant piston area, and the motor must be short enough to go into the room which can be made for it in the wagon, and the stroke of the wagon motor is now very short, and the exhaust is very early, and the fuel loss is always very large.

The Duryea compression is low, the combustion chamber content being 54 per cent. of the piston displacement, giving an average of only about 50 pounds initial compression. This, while unfavorable to fuel economy, is very conducive to smooth and easy motor action, and will probably not be much increased in future.

Construction and arrangement details are given with the illustrations.

CHAINS AND GEARS.

One chain drives the water circulating pump from the motor shaft. A second chain drives the reversing sprocket on the speed shaft. A third chain leads from the sprocket (S, Fig. 7) to the hand crank driven sprocket in the middle of the driver's seat, by which the motor is started. A fourth chain from a sprocket at the bottom of the steering shaft leads to a sprocket on the front axle, carrying a double-eyed rocker arm, whence rods lead to the steering arms. A fifth chain, Baldwin roller, 1-inch pitch, leads from a sprocket on the swinging speed shaft to the balance gear drum sprocket, which is encircled by a band brake, applied by treadle at driver's footboard.

A turnbuckle strut, journaled on the rear axle sleeve, close to the balance drum is jointed to the opposed radius link, in which the speed shaft is journaled, in the lower hole (Fig. 6). From the upper hole in this link a rod is led to an arm on a rock shaft at the rear, and a second arm on this rock shaft takes a rod leading to the other speed shaft link, so that the speed shaft is always moved alike at each end when the chain is adjusted.

Fig. 9 shows the cams and rack and pinion operated cam shaft, by which the speed changes are effected. This illustration is sufficiently described by the caption, as is also Fig. 10, which shows the wagon body with front seat removed and tailboard down, and exhibits the general arrangement of the starting crank, steering crank and speed change lever at the driver's seat, and the placing of the motor and speed-change gear.

The top gear shaft is substantially an extension of the motor crankshaft, running in ball bearings, and carrying the clutch hubs keyed to it, all the three speed-change gears being loose on the top shaft. The reverse gear sprocket (see Figs. 6 and 7) on the top shaft is also loose, and its chain drives a loose sprocket on the lower or speed shaft, which can be engaged by a splined solid-jaw clutch, actuated by a treadle from the driver's footboard. The top or gear shaft is provided with two double-acting friction-clutch shells, fixed respectively to the three cast iron gears and the backing sprocket, and the two cam-actuated clutch levers can clutch any one of the four loose elements to the gear shaft. The speed shaft has keyed to it, in addition to its backing sprocket clutch, three rawhide gears of different diameters, meshing with the cast iron gears on the top shaft; by this arrangement the speed shaft is driven at will at different rates, giving the wagon three speeds forward and one backing speed. Owing to the

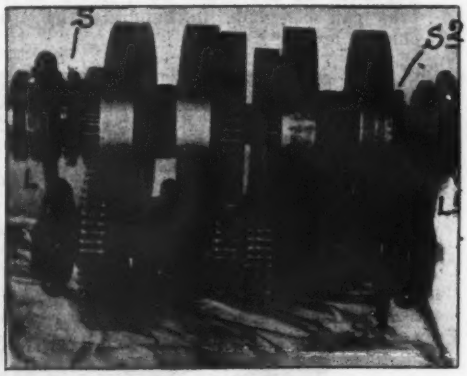


Fig. 7—Side View of Speed Change. Both upper and lower shafts run on ball bearings. All the gears on the upper shaft are loose, and run on graphite bearings, and so require no oil, hence the friction clutch surfaces can be kept clean. The reverse is had by chain from sprocket (S2) to sprocket (S3), and the sliding clutch (C) operated by a treadle knob in the driver's footboard. (S) Starting chain sprocket leads to hand crank sprocket at driver's seat. A sprocket on the speed shaft or intermediate shaft, the lower shaft in the illustration, directly below (S) takes the driving chain carrying a 1-inch pitch Baldwin roller chain to the balance gear drum sprocket. The tips of the teeth of this sprocket are barely seen just inside the radius link in Fig. 6. The speed shaft swings on the clutch shaft to adjust the balance drum chain. The starting chain is adjusted by an inside idle sprocket.

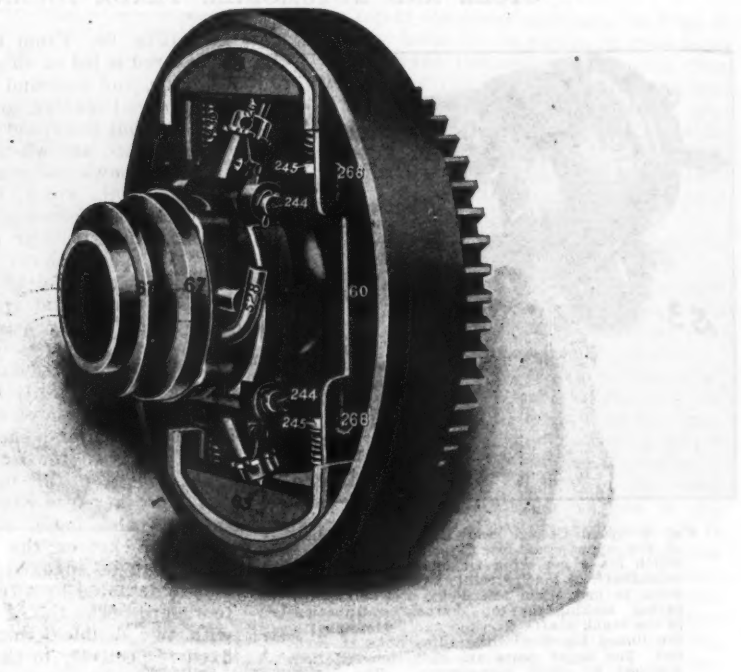


Fig. 8—Stevens-Duryea Toggle-Joint Speed Change Clutch. Operated by a forked lever. Adjusted by the capstan nuts (267), the yoke (69) connecting the toggle members is slotted, so as to have some travel across the shaft, and thus gives an equal pressure on the friction blocks (65), which are leather-faced, and engage the inside of the clutch shell by friction when the toggle links are straightened out by end movement of the hub (67).

peculiar construction of the cams carried by the cam shaft, which is rack and pinion actuated from the speed-change lever (Fig. 13) no two friction clutches can be thrown into engagement at the same time, hence no mistake can be made in handling the speed-change lever.

The radius links which hold the gears in mesh are substantial, and the rock-shaft equalizer keeps the speed shaft always in line with the gear shaft, and the rawhide gears insure a noiseless action, while the friction clutch engagement is always soft and slow and easy, and may be made at any speed

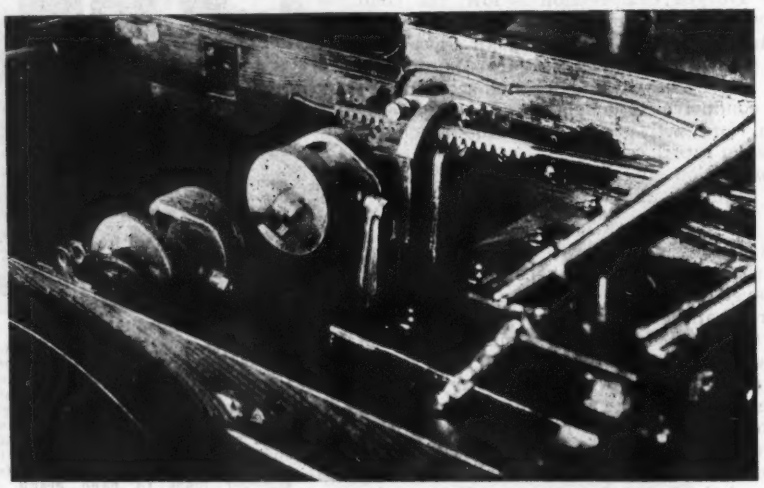


Fig. 9—Stevens-Duryea Friction Clutch Operating Cam Shaft, worked by speed-change lever from driver's seat through the rack-rod, and a pinion, not seen, on the cam shaft. Each of the two double-faced cams operates a lever controling two friction clutches, and standing idle in the intermediate position, thus giving four friction clutch engagements, only one of which can be made operative. The rack rod is locked at each clutch-engaging position, and the cams and rollers are so constructed that the cams are effective in one direction of rotation only, so that acceleration will be by successive engagements, but speed reduction will be direct.

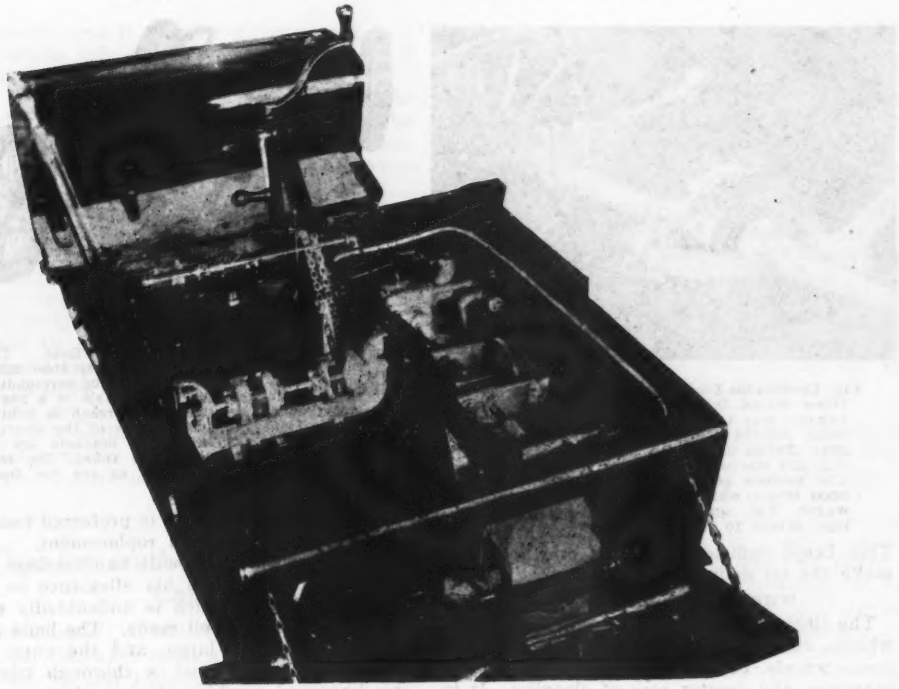


Fig. 10—General Arrangement of Stevens-Duryea Motor and Change-Gear in the Wagon Body. The motor, crank box cover removed, is seen in the wagon body at the right. The speed-change clutch cam shaft is visible about the middle of the wagon body. The speed-change lever is at the left, and the starting crank and steering crank and starting chain are seen in the middle of the illustration.

without shock or fear of breaking gear teeth. This is in very strong contrast to the sliding gear speed change, which requires motor disengagement and skilled handling to avoid the possibility of breakage.

The speed-change lever is at the driver's left hand, and has a grip at the top for the back-and-forth movement by which the speed is changed, and a sliding collar, which lifts the speed-change latch when depressed, and a spring-plunger button on top, operated by the thumb of the hand griping the lever, which is called the "throttle button," and is pushed down to throttle the mixture, and will release the compression when pushed all the way down, or may be fixed at any point by a serrated spring catch, to hold the throttle adjustment. Thus this single-speed change lever controls the carriage speed and the power of the motor, and effects the compression release at starting.

STEERING LEVER AND POST.

The steering post is vertical, and rises up at the middle of the front edge of the seat. The steering lever is horizontal, with a grip at its left end, and corresponds to a single spoke of a steering wheel of very large diameter. The bottom end of the steering shaft carries a sprocket and chain leading forward to a sprocket carried on the front axle, the steering being "secondary."

SEAT STARTING CRANK.

This action consists of a hand crank, horizontal sprocket shaft, and a sprocket and chain leading to the small sprocket next to the motor on the gear shaft. The crank shaft is carried in a bracket fixed to the top of the steering post, and the sprocket and chain are enclosed. See Fig. 13. The motor is easily started from the seat.

THE SPARK.

Columbia dry cells are used for the battery, four being enough, and a spare set of four is carried.

The jump spark has been adopted after long use of the hammer spark, as being less likely to give trouble than anything which has a moving part inside the combustion chamber. When the switch has been thrown out it cannot be made to deliver the current until the spark advance lever is turned down to low point, making the spark late. This avoids danger of too early ignition when starting. The Williams spark coil is used. The motor has no governor, and the spark regulation is by hand. With the throttle plunger nearly down and the spark lever down, the motor will barely run itself.

BRAKES.

The motor and friction clutches may be used to regulate speed down a long hill. The only other brake is that on the balance gear drum, on the rear axle.

The balance gear is a spur gear arrangement, the usual bevel gears and pinions being replaced by spur gears.

OILER.

The oiler now employed is a brass reservoir with six sight drops to six copper oil leads, which oil everything requiring constant lubrication. The brass oil tank has heavy glass ends, and is placed under pressure by a small tube and check valve, open to the exhaust.

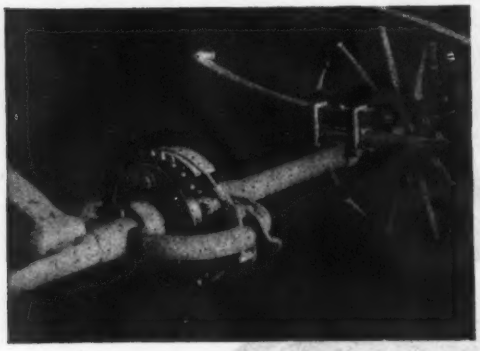


Fig. 11—Stevens-Duryea Rear Axle Sleeve. Steel tubes brazed into a hollow steel yoke. The balance gear is a novel spur pinion arrangement, instead of the usual bevel pinion and gear. Detail description was forbidden. The rear axle sleeve is very heavy and substantial. The balance gear drum is provided with a band brake, which is the only brake on this wagon. The springs are seated on bronze lugs, brazed to the sleeve tubes.

This keeps sufficient pressure on the oil to make the oil delivery certain.

WHEELS AND TIRES.

The 1902 model used wire spoke suspension wheels, changed in the 1903 model to wood spoke wheels, because of improvement in appearance, and greater ease of cleaning. It is much less trouble to wipe a wood-spoke wheel clean than to go over the crossed wires of a tangent-spoke wheel. The wire wheel is strong and light, but does not equal the wood spoke wheel in appearance.

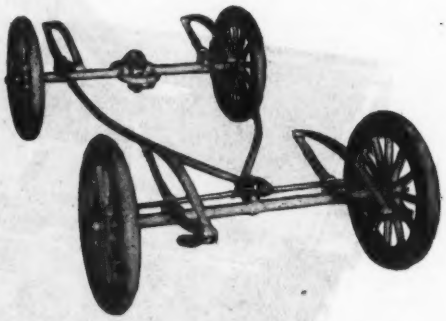


Fig. 12—Stevens-Duryea Running Gear. The rear axle sleeve is made of heavy steel tube, brazed into a hollow steel casting surrounding the balance gear. The front axle is a heavy steel tube. The "wishbone" reach is jointed to the front axle just to rear of the steering sprocket (S). The spring orackets are of bronze, brazed to the axle tubes. The rear axle is on ball bearings, as are the front wheels.

The Fisk tire, flat rim, is preferred because of ease of removal and replacement.

Frank Duryea began with ball bearings, and has never wavered in his allegiance to this form of journal, which is undoubtedly most satisfactory when well made. The balls used are comparatively large, and the cups and cones are of tool steel, a thorough trial of case-hardened machine steel in this exacting service not warranting its continued use. While some wagon makers advocate the entire abandonment of ball bearings, it seems highly probable that the ball bearing will survive, as it does far better than plain journals when

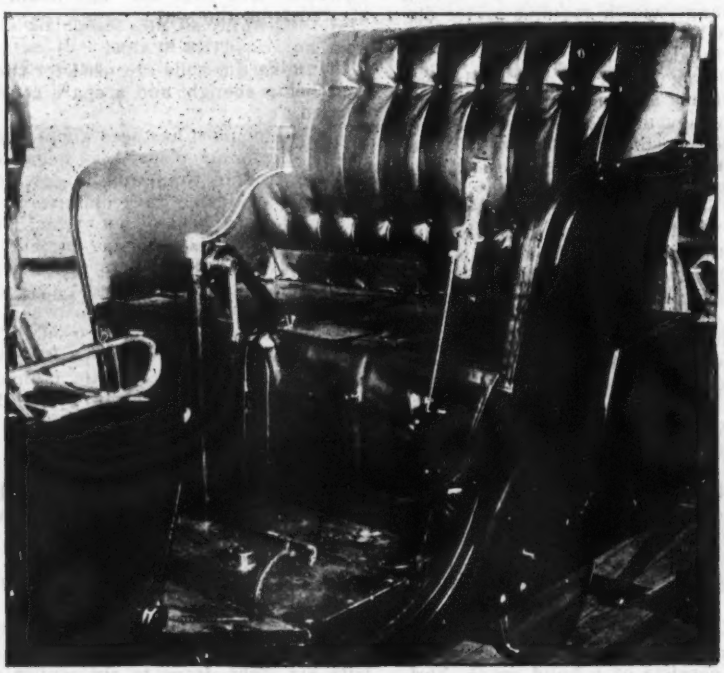


Fig. 13—Stevens-Duryea Levers and Treadles. Steering post, starting crank and steering crank in middle of seat. Brake treadle curves up from footboard in front. Reversing treadle between brake treadle and steering post. Speed change lever to right and front in this illustration. Spark advance lever at A, and spark switch at B.

well made, and it is very difficult to secure the certain lubrication demanded by plain bearings.

On the road the Stevens-Duryea is an extremely still, smooth-riding carriage. The gearing and the exhaust are both noiseless, and the management is very easy. The power is large for the weight.

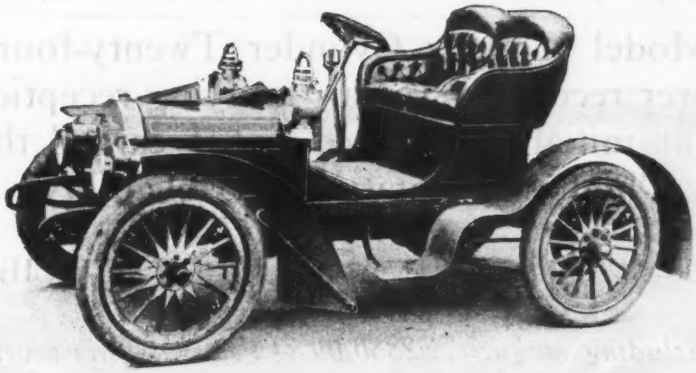
In view of the past, it is quite certain that as the art of mechanically driven wagon building advances toward perfection, the Stevens-Duryea vehicles will fully maintain their present front rank position. Frank Duryea is but little over thirty, all his energies are directed to motor wagon improvement, and his varied and long-extended experience as a driver enables him to correctly value the new combinations he creates, and most important of all, he is willing to abandon that which is not fully up to his own high standard of practical requirements.

Changes on the Jones-Corbin Car

Jones-Corbin Co., 304 N. Broad street, Philadelphia, Pa., have made a number of changes on their popular light gasoline car. These changes consist mainly in refinement in detail and a general increase of weight, the car being now of heavier construction throughout. The wheel base has been lengthened to 6 feet 6 inches, an increase of 6 inches. The 28-inch wheels are now shod with 3-inch tires instead of the 2½-inch tires formerly used. The frame of the new car is of pressed steel. Roller bearings are now used on all the countershaft bearings, and roller bearings are also used throughout on the axles. The speed change gear gives three speeds forward and the reverse. An interlocking device automatically throws out the clutch while change is being made from one speed to another. Every effort has been made to have the car automatically safe, and it is now entirely "fool-proof," the makers claim.

Another improvement is an automatic lubricating system. The lubricator is on the dash. The coil is also placed on the dash, together with the circulation gauge, and space is left on the dash for placing the generator. The steering device is self-locking, and at the same time the road wheels are quickly responsive to the movements of the hand wheel. The steering pillar is of polished brass, as are also the controlling levers. These levers are after the Panhard system. A latest type Whitlock Radiating Coil is now used, which is also an improvement over the old car.

The drive to rear wheels is by 1-inch pitch Diamond chains, with ½-inch rollers. A ¾ inch pitch ⅜-inch chain was used formerly. Two emergency brakes operate on the rear wheels, in addition to the regular brake on the countershaft. The price of the car has been advanced from $1000 to $1250.

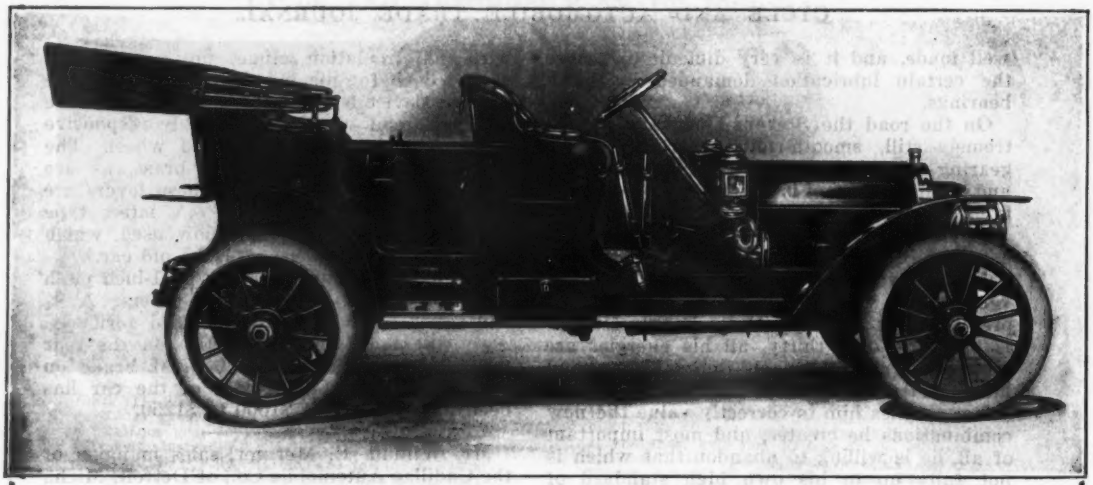


The Latest Jones-Corbin Gasoline Car, $1250.

Mr. William E. Metzger, sales manager of the Cadillac Automobile Co., of Detroit, Mich., was married on June 10. The next day he spent in Buffalo as the guest of Mr. W. C. Jaynes, who gave a breakfast at the Markeen, in honor of the bridal pair. After a trip around the city and a matinee box party at Shea's theatre, the party, consisting of Mr. and Mrs. Metzger and Mr. and Mrs. Jaynes, went to Niagara Falls, where a dinner was served at the Kalterbach. This was followed by a trip to Toronto, Montreal and New York City, and Mr. and Mrs. Metzger then left for Europe.

Dissatisfied over the alleged influence of the A. C. A. in the affairs of the Automobile Club of New Jersey, a number of the latter's members and several other automobilists of Newark and vicinity recently met and decided upon the organization of a new club. A committee was appointed, which reported at a later meeting held during the first week in June. Constitution and by-laws were adopted and a temporary organization effected under the name of the New Jersey Automobile and Motor Club.

Carl H. Page, who recently went abroad in the interest of the Oldsmobile Company, of Detroit, Mich., has, we regret to announce, been stricken with typhoid fever at Singapore, China.



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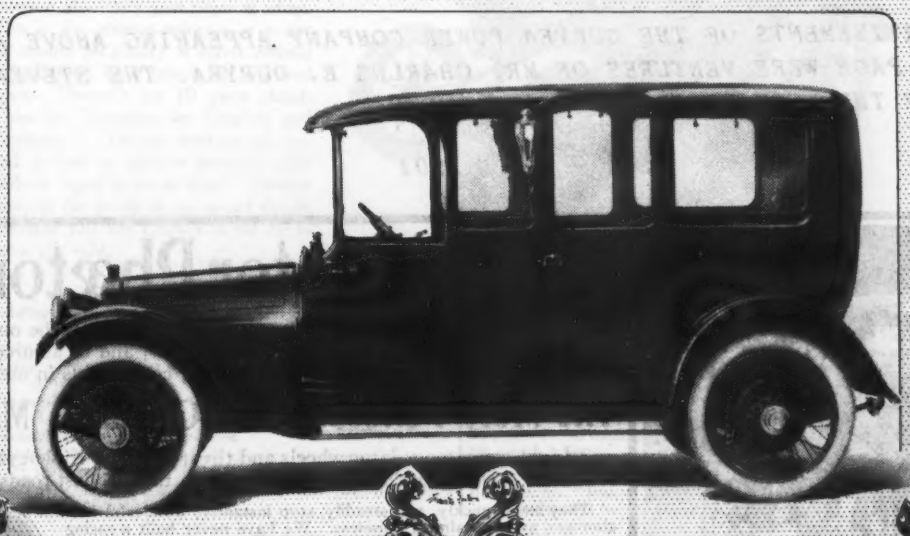

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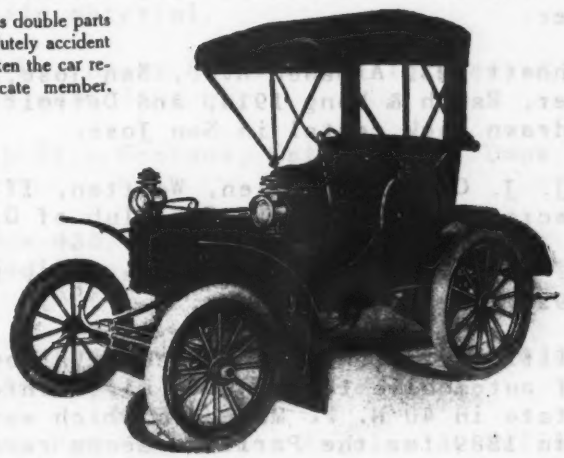

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OUR NEW MEMBERS.

Raymond C. Cocking. 3558 Park Ave., Riverside, Calif. Is building midget race car. Keenly interested in antique automobiles.

Chauncey W. Reed, 1 Ridley Court, Glen Ridge, New Jersey. Once owned a 1914 Mercer raceabout. Wants to buy one.

Karl Weber, 5700 Avalon Blvd., Los Angeles, Calif. Has 1915 Ford Sedan. Has owned nearly every make of car.

Roy O. Reime, 372 Parkside, Upland, California. Interested in the preservation of antique automobiles.

George D. Moe, 404 9th St., Santa Monica, Calif. Is building a steam car. Interested in literature on steamers and other antique cars.

Lieut. Everell E. Fisher, USNR, U. S. Navy Pre-flight School, Iowa City, Iowa. Has 1910 Cadillac touring.

W. Allin, 2834 Denby Ave., Los Angeles 26, Calif. Interested in all phases of antique automobiles.

Jos. J. Even, 1036 West Third St., Dubuque, Iowa. Owns 1911 Saxon roadster.

Lewis Bohnett. 232 Almaden Ave., San Jose, Calif. Owns early Maxwell Chandler, Rauch & Lang 1914, and Detroit Electric 1910. Operates horse drawn hack rental in San Jose.

Captain J. J. Cullimore Allen, Wootten, Ifflet, Oxford, England. Hon. Secretary The Veteran Car Club of Great Britain.

Robert L. Mosher, Jr. 4919 Morella Ave., North Hollywood, California. Owns 1926 Ford Model T Coupe.

E. Tunnicliff Fox, Feeks Lane, Locust Valley, L. I., New York. In early days of automobile toured 2000 miles through New England and New York State in 40 H. P. Mercedes which was built for Peter Cooper Hewit in 1889 for the Paris Bordeaux race.

Frank Stokes, Jr. 441 W. Cypress, Covina, California. Has 2 cylinder Buick, Metz, and Flanders automobiles. Interested in lamps, horns, and pictures. Also old car literature.

Ballard Crooker, Jr. 1022 Palm Ave., Los Angeles 46, Calif. Owns 1923 Rolls-Royce Roadster.

Jamison Handy, Jr. 3422 W. 59th Place, Los Angeles, 43, California. Owns 1917 and 1929 Detroit Electrics, the latter which he drives daily in Los Angeles powered by 18 ordinary 6 volt storage batteries. Has had much experience with electrics.

Charles J. McManus, Jr. Scotforth Road, Philadelphia 19, Penna. Owns 1937 SS Jaguar 2½ liter Tourer.

OUR NEW MEMBERS (CONTINUED).

Julian W. Nance, 6311 Wellsmar Ave., St. Louis 20, Mo. Interested in literature and pictures.

Cecil Clutton, 1 Norland Square, Kensington, London W. 11, England. Hon. Events Secretary. Veteran Car Club of Great Britain.

S. E. Sears, M. A., Bolney Place, Bolney, Sussex, England. Hon. Scrutineer, Acquisition Committee. Veteran Car Club of Great Britain.

Byron Easley, Hurdland, Missouri. Owns Buick, 4 cylinder, 24 H.P. Roadster. Collects anything of historic value, Indian relics, Old coins, Documents, Guns, Books, or what have you.

L. D. Jacks, 3652 Walnut Ave., Lynwood, California. Has Moline 4 cylinder Touring.

Harold M. Donavan, 150 E. Duarte Road, Arcadia, California. Owns Staver 4 cylinder Touring and Hupmobile 4 cylinder Touring.

Henry R. W. Finn, M.D., 140 Glenwood Ave., Jersey City 6, N. J. Owns 1928 Pierce Arrow 81, Conv. Coipe, (Phiilips Body) and 1931 Pierce Arrow 41, Conv. Sedan, (LeBaron Sport Sedan), Interested in pictures and other antique automobile material,

Mrs. Ivy May Finn. Wife of Dr. Henry R. W. Finn. Interested in her husband's hobby. (Should be more like her.)

Lewis L. Sawyer, 108 Hemlock St., Fontana, California, Owns Crosley 2 cylinder Coupe.

Thomas Carstens, Route 8, Box 436, Tacoma, Washington. Owns Cadillac 1 cylinder Roadster and Cadillac 4 cylinder Touring. Interested in lamps and horns.

Clarence T. Hanson, 2001 W. Garvey Ave., El Monte, California. Wants to acquire an antique automobile.

William H. Williams, 9609 San Pedro St., Los Angeles 3, California. Owns Ford Model T Speedster.

Robert M. Thayer, R. R. 6, Rockton Ave., Road, Rockford, Illinois. Owns 1911 Maxwell 2 cylinder Roadster. Has owned and disposed of a great quantity of antique automobile accessories.

James Faris Johnson, 635 Elm Street, San Antonio 2, Texas. Owns Buick 1905 2 cylinder Touring, Ford 1911 Touring, and Woods Mobilette, 1914 Touring. Interested in Literature, Emblems, Lamps, Horns and Pictures.

William Mintz, 267 S. Bedford Drive, Beverly Hills, California. High School Student. Interested in antique cars and wishes to secure one.

WANTED.

Doble, Stanley or White Steamer. George D. Moe, 404 9th St., Santa Monica, California.

Automobiles made before 1927. Preferably Sports Cars. Edward A. Moran 3629 Oxford Ave., Riverdale, New York.

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Instruction book for 1916 Pathfinder V-12. Also any parts for same. William G. Cain, Jr., 1918 Washington Ave., Cedar Rapids, Iowa.

Hood for Locomobile 48. Also Stutz 4 or early Stutz 6 any condition anywhere, and Stutz catalogues and literature. A. K. Miller, 10 Willard Place, Montclair, New Jersey,

To buy or trade auto name plates, hub caps and serial numbers. H. L. Jennison, 1591 S. E. Linn St., Portland, Oregon.

Transmission parts for 2 cylinder Reo, 1909. Also coil box and switch. Will swap photos of 1914 Metz, 1909 Reo for others. Also license plates from Western States. N. W. Crosby, Box 223, Pearl River, N. Y.

Three Wheel Antique Automobile, Knox, Duryea or other makes. Museum of Antique Automobiles, Princeton, Massachusetts.

Atwater-Kent Ignition System and water pump for 1909 Model T Ford. Bob Gegen, 3160 N. W. 2nd St., Miami 35, Florida.

Radiator and hood for 1912 Metz. Radiator emblem for 1911 Flanders. 2 inches in diameter. Connecting rod for Saxon 4. Saxon 4 motor, all or part. Frank Stokes, 441 W. Cypress Ave., Covina, California.

24 inch by 10 inch truck tires for Sentinel Steam dump truck. Also tubes and flaps. Bob McCord, 529 66th St., Oakland 9, California.

Automobile and Truck radiator emblems. Buy, Sell or Trade. Gene Meikel, American States Insurance Co., 542 No. Meridian Street, Indianapolis 6, Indiana.

Auto accessories and parts for foreign, and unusual domestic cars Lamps, horns, wheels, emblems, bumpers, radiators and shells, fenders, complete sports bodies, engines, transmissions, etc. C. A. Gaines, 732 W. Wisconsin Ave., Milwaukee, Wisc.

Chrome plated twin Buell air horns, Mercedes Benz V shaped radiator shell, 20 inch Rolls Royce Buffalo type wire wheel, and Rolls Royce P-I instruction book (American). C. A. Gaines, 732 W. Wisconsin Ave. Milwaukee, Wisc.

Pierce Arrow literature and catalogues, any year. Also Auburn, and Franklin 1928 thru 1933, and 1932 Hupmobile catalogues. M. F, Bustin Box 112, Cochituate, Mass.

Instruction book for White Model MM Steamer, also catalogues and instruction books for other models of White Steamers. Will buy or trade. Hyde W. Ballard, 227 N. Bowman Ave., Merion, Pennsylvania.

Magneto, lamps, hood and rear spring for 1912 Hupmobile. Also a model G DeTamble runabout. Will trade a 1912, a 1916 and a 1922 Reo for same. Professional painting and chrome plating. No job too large or too small. W. Jack Down, Box 146, East Lansing, Michigan.

Curved-dash Oldsmobile in fairly good condition. Will buy, or trade 1906 one-cylinder Reo in perfect condition. John Carra, Jr., 1808 Canyon Drive, Hollywood 28, California.

Information leading to the purchase of a bulb horn for steering post. H. P. Kopf, 618 W. Missouri St., El Paso, Texas.

Thor and Excelsior motorcycle parts. W. L. Kirk, 2730 So. Walnut Grove, Garvey, California.

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Duesenberg A, Marmon 34, Mercedes-Benz, Bugatti, literature. Also copies of Automotive Industries. Will buy or trade. William A. Johnson, Jr., 835 N. California St., Burbank, California.

Antique automobile. Prior to 1915. Edward A. Moran, 3629 Oxford Ave., Riverdale, New York.

Herz 682V, 45 degree Magneto or 45 degree Bosch Magneto for two- cylinder Excelsior motorcycle. Ransom B. Matthews, Los Angeles County Museum, Los Angeles, California.

880x120 (34x4½) and 935x135 (35x5½) Clincher tires. Lloyd C. Partridge 712 Federal Street, Chicago 5, Illinois.

30x3 inch tires and tubes. Also would like to hear from owners of Grant, Hupmobile or Saxon cars. Forrest B. Doughty, 222 South 15th Ave., Maywood, Illinois.

Gray and Davis 104, oil lamp for right side of 1912 Abbott-Detroit. Electric light socket in rear. Black with nickel trim. Will buy or trade various automobiliana. Luther S. Watson, 141 33rd Street Drive, S.E., Cedar Rapids, Iowa.

Radiator emblems in good condition. Prefer those 1920 to 1930. Will buy or trade. Send for list of those I have with complete description. Ernest Dotter, 196 Rose Street, Freeport, New York.

Mercer Raceabout. Series 4, 1918. A-1 condition. As original throughout. Price. $1000.00. T. F. Robertson, 37 St. Mary's St., Boston 15, Mass.

Pratt 40, 1912. Front seat only. No lamps or tires. Waukesha motor and transmission. Bosch Ign. Schebler carburetor. Full floating rear axle. Price $100.00. J. E. Vanderveer, 26 Emerson St., Kingston, New York.

Cadillac parts. 4 cylinder. Ford Model T parts. Chevrolet 490, 5 passenger. Needs drive shaft. W. L. Kirk, 2730 So. Walnut Grove, Garvey, Calif.

Ford Roadster, 1921 Model T. Perfect condition. Good battery and tires. $150.00. Buick 1905. Enough parts to make a real antique. Not assembled. Chain drive touring. Model F 2 cylinder. No tires. $150.00. Alton Walker, Box 156, Carmel, California.

Overland Roadster. Model 69-R. Fair condition. Requires some motor work. Early Dodge fenders and head lamps. Six good tires. $100.00. James R. Eckman, 821 So. 9th St., Alhambra, California.

Havers, 1912. (See Clymer's Scrapbook Vol. 2. Page 129.) Acetylene self.starter. Tires, Headlamps. Speedometer. No upholstery. $75.00. Odd lamps to trade. Harry B. Johnson, 3671 Leland, San Pedro, California.

Overland Roadster, 1910. Mitchell Touring, 1912. Ben L. Sharpsteen, 2324 Panorama Drive, La Crescenta, California.

Buick Roadster. 1913. 4 cylinder. New condition. $1000.00 or will trade on a new automobile for future delivery. Byron Easley, Hurdland, Mo,

Original, Genuine Vol. 1, No. 1, Horseless Carriage Gazette. Not reprints. Only two copies available $1.50 each. Send order to Club Secretary.

Overland, 1909. Fine condition. Will sell or trade for late model Coupe. W, L. Kirk, 2730 So. Walnut Grove, Garvey, Calif.

Lancia. 1923. Good condition exceoting paint. $350.00. Frank Stokes, 441 West Cypress Ave., Covina, California.

Franklin touring, 1912, 4 cylinders. Locomobile 48 touring. Good condition. Old catalogues, radiator emblems, Stutz parts, all models including some gaskets. Pair new Willys Knight fenders, 4 cyl. Bulb horn reeds. Franklin Barts, 4 cyl. 32x4 tires. A. K. Miller, 10 Willard Place, Montclair, New Jersey.

White Steamer. Model 00 Touring. Good condition. Stanley Steamer Sedan, 1924. Stanley Steamer Coupe. Victory type. Bryan Water Tube Boiler. Stanley Allred, Warren, Indiana. Route 1.

Overland 90 Touring. 4 cylinder. Good top and upholstery. Fisk Red Top tires. Running condition and licensed for 1945. $225.00. William G. Cain, Jr. 1918 Washington Ave., Cedar Rapids, Iowa.

Ford Coupe. 1923 Modek 5. Good condition. Also 400 Automotive Industries, 1920 to 1943, all in excellent condition. Edward A. Moran, 3629 Oxford Ave., Riverdale, New York.

Photographs of racing cars are my great interest. Your request for prints of racing scenes in my possession will be filled gratis to the best of my ability. No obligation whatever attached. Chas. Lytle, 159 Pitt St., Sharon, Penna.

Lexington Sedan, 1927. Anstead motor. Fine condition. Excellent tires. $125.00. Dr. E. Martin Ruccione, 902 No. Mariposa Ave., Los Angeles 27, California.

Brush Radiator, steel shell, $15.00, Buick 1912 Radiator, steel shell, $15.00. New Horn Bulbs, $2.00 ea. Haynes Touring 1916, 6 cylinder, $50.00. Tires 30x3-31x4-32x3½-33x4-34x4½-34x4-36x4½-35x5-32x4½-33x5. Odd lamps to sell or trade. 30x3 wheels for change over for 28x3 tires. Bernard Rademacher, 8769 Avalon Blvd., Los Angeles 3, California.

Oldsmobile touring 1916, perfect condition, good tires, 1945 License. $250.00. Franklin touring 1919, good condition, good tires, 1945 license. Spare motor, transmission, rear axle, etc. $300.00. Stevens Duryea 1913, California top. 7 passenger. 1945 license. $250.00. Knox Fire Engine 1912, from City of Berkeley, no equipment. Runs fine. Good tires. $250.00. Renault Taxicab 1906. Motor in good condition and good tires. Needs paint. $400.00. Orin Thorkildsen, 1600 E. Nadeau St., Los Angeles 1, California.

Success high wheeler, about 1904. 1 cylinder. Runs good. (You should have seen it going round and round at last Field Meet). 1914 Ford touring. New top. Delco starter and lights. Very clean. 1915 Ford roadster. Running and complete. 1921 Templar 4 place Sportette. Padded top, seat covers, radio, new paint, and extra tires. 1925 Duesenberg A Phaeton. Nice leather, clean, and in fine mechanical condition. Would like to trade any of above for early raceabout or sport car, Mercer, Stutz, Lozier, Cunningham, or Marmon. Edw. J. P. Cunningham, 1924 Carmona Ave., Los Angeles 16, Calif.

Automobile magazines, books, sales literature, instruction manuals. Also 20 photos of old cars for 25¢. Edward A. Moran, 3629 Oxford Ave., Riverdale, New York,

Machine shop work. Expert repair or duplication of automobile parts. Electric and Acetylene welding. Brazing. No job too large or too small. Estimates free. Not a garage. Edwin Griffiths, 2215 South Sepulveda Blvd., (near Olympic), West Los Angeles, California. Phone ARizona 38430.

Magazines, Instruction manuals, Automobile songs, to trade. Albert Brouse, 2637 So. Hobart Blvd., Los Angeles 7, California.

Complete Duesenberg tubular front axle assembly. Hydraulic brakes. 80 mm Rudge-Whitworth hubs. Cross rod, drag link rod, brake fluid reservoir and copper tubing. $25.00 or will trade for equal value in automotive literature prior to 1915. Herbert Royston, Box 503, West Los Angeles 25, California.

Essex Phaeton 1922 4 cyl. $445.00. Nash Touring 1923 6 cyl. California too. Both cars in excellent condition with almost new tires. R. M. Studin, 446 So. St. Andrews Pl., Los Angeles, California.

Buick Model F 2 cyl. Touring. New tires. Excellent except front upholstery and dented radiator. Clayton Edwards, Waquoketa, Iowa.

FOR SALE OR TRADE. *(CONTINUED).*

Curved dash Oldsmobile. Dash cracked. No tires. No lamps. Otherwise good. Chevrolet Garage, Benton, Wisconsin.

I. H. C. Highwheeler and Olds rear entrance touring, 1 cyl. Supposed to be in good condition. Leslie Halverson, St. Olaf, Iowa.

Buick Roadster 1910 4 cyl. Not so good. Will sell all or any part. Richard P. Bissell, 645 Fenelon Pl. Dubuque, Iowa.

Ford Touring 1916. Overhauled. New bands. Iowa license. Richard P. Bissell, 645 Fenelon Pl., Dubuque, Iowa.

Maxwell Roadster. 2 cyl., Model AB. F. E. Bissell, Jr., 325 Alpine St., Dubuque, Ia.

Regal Underslung Roadster. Robert M. Thayer, Route 6, Rockton Ave., Road, Rockford, Illinois.

Lincoln V-12, 1933. Murray body sedan, 6 wire wheels and side mounts. Rolls--Royce 1929 P-I Brewster Brougham. Sell or trade either for 1938 or later Buick chassis, or open Foreign or Domestic Sports car. Also Rolls-Royce or Hispano-Suiza metal winter fronts. Lincoln radiator shell and grill, 1933, V-12. Cadillac V-16 radiator screen, 1930. Cadillac V-16 hood sides with doors, 1930. Klaxon 12 volt electric horn, nickel finish. C. A. Gaines, 732 W. Wisconsin Ave., Milwaukee, Wis.

Pictures of early race events. 75 to select from. Send for list and prices. Albert Mecham, 140 Michigan Ave., Highwood, Illinois.

WANTED. *(CONTINUED).*

Magazines. Popular Science or Popular Mechanics, prior to 1910. Will pay 10¢ each for perfect copies. Richard Gluenger, Box 141, Islip Terrace, Long Island.

Sears 2 cyl., Air cooled motor complete, 1904 to 1909. 1 cyl., Reo Motor and transmission, 1907. Old cars to rebuild. Bernard Rademacher, 8769 Avalon Blvd., Los Angeles 3, California.

One each of following license plates. Michigan 1926, Indiana 1927, California 1927, Michigan 1928. John D. Nisley, 1028 30th St., Manhattan Beach, California.

Magazines. Motor, Motor Annuals, Ford Owner and Dealer, Franklin instruction manual for 1923, or any Franklin literature. Automobile songs. Old spark plugs. Albert Brouse, 26eu S. Hobart Blvd., Los Angeles 7, California.

Tires 35x4½ straight side. Differential gears for 1904 rear entrance 1 cyl. Olds. F. E. Bissell, Jr., 325 Alpine St., Dubuque, Iowa.

License tags, Name plates, Literature, and other automobiliana. Will buy, trade or sell. Write for particulars. Swigart Museum, Huntingdon, Penna.

FOR SALE.

Mercer 6 cylinder chassis. Renault chassis. Ford Touring, 1913. Cadillac Touring, model 59. Duesenberg Roadster. 1925 model A. 30x3 tires. New 32 to 34x4½ tubes. Various odds and ends of brass side lamps. Art Austria, 2811 San Pedro Street, Los Angeles, California.

20 H.P. Stanley Steamer Engine with copper case. Four mechanical pumps mounted, long and short main steam lines, differential housing with gears, etc. This is one of the latest models with generator drive on rear axle and is in perfect condition. Also large flash type boiler in insulated case and designed for too firing. Boiler in perfect condition, never in a car. Price for both, including some fittings, automatics and motor-blower for boiler, $350. Cord (front wheel drive 1937) front frame section complete with bumper, knees, shocks, master cylinder and steering gear. Also rear frame section complete with tank, springs and rear axle. Will sell as a unit or separately. Set of Cord Sedan doors and engine hood. Ray Nelson, 11131 Huston St., North Hollywood, California.

WANTED.

Foreign Sports Car. Will trade Mercer Raceabout, Series 4, 1918. Valued at $1000. New condition and original throughout. Ted F, Robertson, 37 St.Mary's Street, Boston, 15, Mass.

Genuine Linen Duster and Gauntlet Gloves for period of 1905. F. L. Reichert, 424 North Garfield Ave., Pasadena 4, California.

Good 30x3 tires and tubes. Pictures and literature on Cadillac Model B. F. L. Reichert, 424 North Garfield Ave., Pasadena 4, California.

Automobile magazines. Any kind. Will trade seven foot high stack of "Life" magazines, all different. Herbert Royston, Box 503, West Los Angeles 25, California.

NEW MEMBERS.

George W. Shrider, 1031 W. Manchester Blvd., Inglewood, California. Interested in pictures of antique and unusual automobiles

Harlan E. Appelquist, Cokato, Minnesota. Interested in pictures and literature about antique and unusual automobiles. Just back from Germany where he took an unusual interest in foreign automobiles and motorcycles. Sent much interesting material to friends in the United States.

Edwin L. Griffin, Owner of Griffin Fuel Co., Largest suppliers of fuel in the Pacific Northwest. 1910 Commerce St., Tacoma 2, Washington. Owns Palmer Singer 4 passenger Touring, 1908. Isotta, Locomobile, 1922 touring, Duesenberg, 1929 Coupe. Cord, 1937 Coupe. Midget TA 1897, 1938. White Roadster, 1912. Pierce Arrow Touring 1924.

Mrs, Margaret K. Smith, 590 No. Irving Blvd., Los Angeles 5, California. Wife of Mr. Steadman G. Smith, Vice President of The Horseless Carriage Club.

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JUST OFF THE PRESS. Floyd Clymers HISTORICAL MOTOR SCRAPBOOK NO. 3. You havn't got this one, Send $1.50 at once for your copy. Mail order direct to The HORSELESS CARRIAGE CLUB. P. O. Box 503, West Los Angeles 25, California. DO IT NOW.

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